U.S./JAPAN SCIENCE AND TECHNOLOGY AGREEMENT

HEARING

BEFORE THE

SUBCOMMITTEE ON
SCIENCE, RESEARCH AND TECHNOLOGY

AND THE

SUBCOMMITTEE ON INTERNATIONAL
SCIENTIFIC COOPERATION

OF THE

COMMITTEE ON
SCIENCE, SPACE, AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDREDTH CONGRESS

SECOND SESSION

JULY 13, 1988

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*Ranking Republican Member.

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U.S./JAPAN SCIENCE AND TECHNOLOGY AGREEMENT

WEDNESDAY, JULY 13, 1988

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY,
SUBCOMMITTEE ON SCIENCE, RESEARCH AND TECHNOLOGY, AND
THE SUBCOMMITTEE ON INTERNATIONAL SCIENTIFIC
COOPERATION
Washington, D.C.

The subcommittees met, pursuant to call, at 10:30 a.m., in Room 2318, Rayburn House Office Building, Hon. Doug Walgren, [chairman of the Subcommittee on Science, Research and Technology] presiding; and Hon. Ralph M. Hall [chairman of the Subcommittee on International Scientific Cooperation] in attendance.

Mr. WALGREN. This morning, the Science, Research and Technology Subcommittee and the International Scientific Cooperation Subcommittee will conduct a joint hearing to review provisions of the recently renewed U.S./Japan Cooperative Agreement in Science and Technology.

This pact, signed during the Economic Summit in Toronto this past June, sets forth broad principles under which the governments of the United States and Japan will carry on their future science and technology relationship. A five-year accord, this supersedes the Science and Technology Agreement that was signed by President Carter and Prime Minister Ohira in 1980.

Under the newly expanded agreement, the two countries plan to conduct joint research in the life sciences, including biotechnology and also joint research in information science, in manufacturing technology, in automation and process control, in global geoscience and the environment, in data base development and in advanced materials development, among other areas.

The pact calls for both governments to provide comparable access to their government-sponsored or government-supported research facilities and activities, as well as to scientific and technical literature.

The reciprocal access issue has been a difficult point in the past. While American government and university research facilities have been open to Japanese researchers, many in America have felt that we were denied equal access to Japanese laboratories. The fact of it is that over 14,000 scientists from Japan work annually in the United States, while only 700 American scientists work in Japan.

The problem has been compounded by the fact that the structures of American and Japanese research are different. Half of all U.S. research and development is funded by the government, while the Japanese government supports directly only 20 percent. Japanese industry funds 80 percent of the country's research and development in some views, and during this hearing, we hope to gain some insight into how this comparable access issue will be addressed and implemented under the new agreement.

Other areas of concern covered by the agreement include research related to national security and apportionment of intellectual property rights. We would hope to explore with our witness how a clear separation of military and civilian research intends to be maintained.

We also hope to explore how intellectual property rights will be handled, questions like what happens to the inventions that Americans may be involved in while working in Japanese laboratories and vice versa.

Finally, this agreement has been referred to as an umbrella agreement, and if this is so, we would be interested to know and understand exactly what the umbrella covers and what other U.S./Japan scientific agreements come under its provisions.

As the science and technology relationship between the United States and Japan becomes increasingly more important each day, we hope the signing of this accord will bring us a new period of cooperation and shared responsibilities between our two countries and we hope, then, and intend for the Science, Space and Technology Committee to be an interested and supportive partner in that effort.

At this point, I would like to say how much I appreciate the chairman of the International Cooperation Subcommittee, Congressman Hall, from Texas, for joining with our Science, Research and Technology Subcommittee in encouraging us to participate in this hearing that lies certainly very much in the range of the interest of his subcommittee as well.

Before recognizing Congressman Hall for any comments he would like to make, I want to turn to the minority side and recognize the ranking minority member of the Subcommittee on International Scientific Cooperation, Congressman Sensenbrenner, from Wisconsin.

Mr. SENSENBRENNER. Thank you very much, Mr. Chairman.

I would like to echo what you said in expressing my concern, as well as my hope, that this new five-year extension of the U.S./Japan Science and Technology Cooperation Agreement will work out a little bit better than the previous one.

We've had problems with symmetry of access; we've had problems of language and translation in publications on the results of research, but I also think we've had a bigger problem with the earlier agreement, which I hope this one adequately addresses, and I'm not sure. That is, the whole argument about the financing of basic research versus applied research.

During the last eight or nine years, even before the change of administration, the United States has deemphasized government funding of applied research and has put a lot of money into emphasizing basic research. And that is a change which has been done

with bipartisan cooperation and with practically no controversy in this committee and in the Congress as a whole, largely on the philosophy that if the basic research comes up with something that can be commercialized, then it ought to be the private sector that pays for the applied research and goes ahead and commercializes it.

This change in emphasis from applied to basic research has not been matched by a similar change on the Japanese side, and what the Japanese have done in certain instances is basically taken basic research, which the American taxpayer has paid for, commercialized it and used it to compete with American-made products in our market, as well as international markets.

While this new agreement was under negotiation, Chairmen Roe and Hall and ranking members Lujan and myself sent a letter to the President of the United States asking that he take into consideration this issue of our changing emphasis from applied to basic research, as well as the symmetry of access and the language problems in the publications of scientific research.

In order to make the record complete, I'd like to ask unanimous consent that a copy of this letter be put into the hearing record at this point, and I would hope that—

Mr. WALGREN. Without objection.

Mr. SENSENBRENNER. The witnesses from the State Department today will touch on the two points that the chairman brought up, as well as the one point that I brought up, on how this new agreement is better than the old one. I thank you.

Mr. WALGREN. Without objection, that will be the order.

[The letter referred to follows:]

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U.S. HOUSE OF REPRESENTATIVES

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

SUITE 2321 RAYBURN HOUSE OFFICE BUILDING
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November 19, 1987

The President
The White House
Washington, DC 20500

Dear Mr. President:

We are writing to express our concerns with the ongoing negotiations for an Agreement for Cooperation in Science and Technology between the United States and Japan. We feel that substantial revision of the existing Agreement must be negotiated to assure adequate protection of U.S. intellectual property rights and to guarantee equal access for American scientists to Japanese research institutions.

The Committee on Science, Space, and Technology, on which we serve, has been involved for some time in reviewing issues of international scientific cooperation and international competitiveness. The Congress has approved the expenditure of billions of dollars annually on basic and applied research for the purpose of achieving long-term benefits for American society. Often, the results of basic research paid for by American taxpayers and freely available to all of the world's scientific community have been commercialized by Japanese companies for export back into the United States. However, access to Japanese research institutions have been denied to interested American researchers. This lack of equivalent access is unacceptable and must be addressed.

We seek your support in instructing the persons and agencies responsible for renegotiating the Agreement with Japan to adequately resolve these issues. The United States has long been a world leader in freely extending the boundaries of knowledge in science. It is our hope that Japan will join in allocating its share of resources in support of basic research and will then fully share those results with all nations for the mutual benefit of all.

Thank you for your consideration of these matters. We extend our best wishes for a successful conclusion of these negotiations.

Sincerely,

Manuel Lujan Jr.
MANUEL LUJAN, JR.
Member of Congress

ROBERT A. ROE
Member of Congress

F. JAMES SENSENBRENNER, JR.
Member of Congress

Ralph M. Hall
RALPH M. HALL
Member of Congress

Mr. WALGREN. Let me then turn to the chairman of the Subcommittee on International Scientific Cooperation, the gentleman from Texas.

Mr. HALL. Thank you, Mr. Chairman.

Good morning, Mr. Secretary. We look forward to continued good work and the cooperative spirit that Ambassador Negroponte always extended to us, both personally and to this Committee, and we thank you for your attendance here today.

We particularly welcome you to this joint hearing and we are very pleased and honored at your appearance—we appreciate you taking the time to help us to understand the provisions of the science agreement that we've signed with the Japanese and very hopeful that at the conclusion of this hearing, that we'll have a little clearer picture of just what we achieved during those obviously difficult and interesting negotiations.

I think we recognize the importance of our relationship because Japan—of our relationship with Japan on these issues because we, along with the Japanese, are, of course, we feel, the world leaders in the scientific research and development and I think it's very critical that we remain willing to share knowledge with each other.

As the members of this committee know, scientific research is extremely expensive and projects like remapping of the human genome, the Superconducting Super Collider, the Space Station consume just huge amounts of money over the course of their development.

As a result, I think it becomes more and more important that we share these costs with others who will benefit from the expenditures, and particularly with our allies in science. If we don't cooperate on these research projects, the cost burden is very likely to imperil both our economic independence and our national security. I think there is a threat both ways there.

I have read the press reports of the agreement and they do reflect enthusiasm of our two countries for the principles behind this agreement and I certainly agree that it's beneficial to the interests of both countries that we acknowledge our cooperation in science and technology by signing the document. But after all the rhetoric about the virtues of cooperation and all the picture-taking that is behind this and the hand-shaking, I think the specific provisions of this agreement still seem, to some of us, vague and a little bit unclear and I'm very hopeful that your testimony here today can shed some light on this.

For example, I think we'd like to know what specific research projects will be identified as cooperative activities; what steps will be established by the U.S. and Japan to assure cooperation; and how can you evaluate whether satisfactory progress is achieved on these projects?

I think we all agree that this is a very positive step forward in our relationship with Japan and we anticipate some very worthwhile results from this high level of scientific cooperation. I think we all need to keep in mind continuously, and I've put this into almost every discussion that I have along this line, another area where cooperation should take place and that's the sharing of defense costs.

Now that Japan has achieved a very high level of sophistication and economic security, I think it's time for Japan to make a much greater contribution to the escalating cost of their own defense. In this way, our two nations can achieve even greater comparability as we approach the challenges of this next century. I think there is a growing sentiment in this Congress that we need to allow them the right to participate more in their own defense than they have since 45 years ago when Douglas McArthur and the leaders of the Japanese Empire set together an agreement that partially exists on down to this day.

I thank you, Mr. Chairman, and yield back the balance of my time.

Mr. WALGREN. Thank you, Mr. Hall.

Let me defer to other members who would like to make any opening comments.

Mr. Boehlert.

Mr. BOEHLERT. No statement.

Mr. WALGREN. Mr. Henry.

Mr. HENRY. No statement.

Mr. WALGREN. Well, with that, let's turn to our witness today. We have only one direct witness, but accompanied by several others: Dr. Frederick Bernthal, Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs with the Department of State. Dr. Bernthal is accompanied by representatives from the Office of Science and Technology Policy, Deborah Wince, who is the Assistant Director for International Affairs; from Department of Commerce, Maureen Smith, the Deputy Assistant Secretary for Japan and from the National Science Foundation, Charles Owens, Division of International Programs.

We appreciate all of you being here and let's start first with Dr. Bernthal and perhaps we can get some contributions from the others, from the Executive Branch as well.

Welcome to our committees, Dr. Bernthal. Your written statement will be made part of the record and please feel free to develop your presentation, emphasizing the parts that you would like to underscore in whatever way works best today. So welcome to the committee.

STATEMENT OF FREDERICK W. BERNTHAL, ASSISTANT SECRETARY OF STATE FOR OCEANS AND INTERNATIONAL ENVIRONMENTAL AND SCIENTIFIC AFFAIRS, U.S. DEPARTMENT OF STATE; ACCOMPANIED BY PETER DE VOS, DEPUTY ASSISTANT SECRETARY OF STATE FOR SCIENCE AND TECHNOLOGY, U.S. DEPARTMENT OF STATE; CHARLES T. OWENS, DIVISION OF INTERNATIONAL PROGRAMS, NATIONAL SCIENCE FOUNDATION; DEBORAH WINCE, ASSISTANT DIRECTOR FOR INTERNATIONAL AFFAIRS, OFFICE OF SCIENCE AND TECHNOLOGY POLICY; AND MAUREEN SMITH, DEPUTY ASSISTANT SECRETARY FOR JAPAN, DEPARTMENT OF COMMERCE

Mr. BERNTHAL. Thank you, Chairman Walgren, Chairman Hall. It's a pleasure for me to appear before this committee, which I have always, both in my years of service as a member of the staff

of the Congress, and certainly since then, taken a special interest in.

I might mention that one of the members of this committee, Congresswoman Lloyd, from Tennessee, was, is, remains my Congresswoman and Representative to the Congress, so I've always taken a very special interest in these areas.

I appreciate particularly, Mr. Chairman, the pleasure to have the opportunity today to discuss the agreement between the Government of the U.S. and the Government of Japan on cooperation in research and development in science and technology. This agreement, as you know, was signed by President Reagan and Prime Minister Takeshita on June 20 in Toronto. It has a duration of five years, after when it may be renewed.

We consider this new S&T agreement between the U.S. and Japan in many respects to be a model international accord. Through this agreement, the United States and Japan, the world's leaders in many respects in science and technology, have joined in a new partnership based on equality, reciprocity and comparability.

This agreement is designed to strengthen bilateral cooperation between our two countries and to enhance our scientific exchange. We believe that the template that is set out in this agreement will result in significant gains for both of our countries' science establishments.

This head-of-government agreement is an umbrella agreement and supersedes the one to which one of you referred a moment ago, the one signed by the American President and Japanese Prime Minister in 1980. In addition to providing a new umbrella for agency-to-agency memoranda of understanding for specific cooperative projects, the new agreement establishes a framework of principles, and that is in Article 1, for our overall government-to-government scientific and technological relationship with Japan.

These principles include shared responsibilities and mutual and equitable contributions and benefits, commensurate with the two nations' respective scientific and technological strengths and resources. They include comparable access to scientific information and major government-sponsored or government-supported programs and facilities. They include adequate and effective protection and distribution of intellectual property rights, both introduced and created during the course of any collaborations.

They include the widest possible dissemination of information consistent with the applicable national laws and regulations, including those related to national security. Finally, they include the shared cost of collaboration, taking into account respective risks, benefits and management accounting.

In addition to those principles, Mr. Chairman, the agreement sets forth provisions for cooperative activities under this agreement. It states that the projects under this agreement should be of national importance to both countries and should be undertaken in fields where each nation has complementary and world-class expertise. Thus, areas in which one nation may not have either similar or at least counter-balancing expertise would not be available for cooperation under the agreement.

We've agreed to focus our initial research in a number of particular areas of science and technology, and those include the life

sciences, including biotechnology, information science and technology, manufacturing technology, automation and process control, global geosciences in the environment, joint data base development and advanced materials, including superconductors. This list is a broad assessment, of course, and is subject to modification, depending on our future assessments of national priorities.

Cooperative projects may include scientists from all sectors of the research community. Any government-sponsored or government-supported project, regardless of whether it is being conducted at a nonprofit institute, university or industrial laboratory, may be eligible for cooperation under the agreement.

This concept is very important because it reflects the distinctions referred to already this morning in how research is conducted in the U.S. and in Japan. In the United States, as all of you know, most of our world-class research is performed in our universities and nonprofit institutes and the results are readily available to the public. Similar research in Japan takes place largely in the industrial sector.

At the same time, this agreement allows each party some flexibility to give due consideration to certain government-sponsored or supported programs which, for various reasons, such as national security, should not be eligible for joint projects.

This agreement also is a hallmark, Mr. Chairman, in that it sets out specific intellectual property rights provisions for cooperation. It protects, for instance, business confidential information and the distribution of rights to inventions, copyrights and mask works.

The negotiators of this agreement were determined to recognize the contributions of each side in the assignment of rights to intellectual property generated as a result of cooperation under this agreement. Thus, as a general principle in situations where an invention may be generated while a scientist is visiting another facility and it is anticipated that the personnel at the host facility will make a major and substantial contribution to the programs of the cooperative activity, the host institution retains the right of first refusal to invention rights in all countries.

In the case where the host is not expected to make a significant contribution to the cooperative programs, then a visitor to that host institution has the first right of refusal in his or her country. In very specific situations involving joint research projects with an agreed research scope, this agreement provides for alternative but equitable arrangements to be made on a case-by-case basis.

As regards the security-related language in this agreement, I wish to underscore that it supports the greatest possible dissemination of information resulting from cooperative activities, subject to national security requirements, including those related to export control and to the need to protect intellectual property rights.

It also stipulates that no classified work will be conducted under this agreement. It confirms that each country's national export control regimes are applicable under this agreement.

An important provision of the management aspects of this agreement creates a multi-tiered management structure to oversee the activities and objectives under the agreement. This management structure will consist of three groups; a government high-level joint committee, to be co-chaired on the U.S. side by the President's Sci-

ence Advisor. That group will consider the overall S&T relationship between the two countries, as well as an specific issues which may arise. There will be a government working-level committee which will do the essential staff work and the preparations for the high-level committee meetings and finally, there will be a joint high-level advisory panel to be comprised of imminent representatives of academia, industry and other scientific organizations.

Mr. Chairman, the joint high-level committee will assess, among its other duties, major developments with respect to the agreement and each party's science policies, research establishments and issues related to comparable access for each nation's scientists to the other nation's facilities and information. Chief among the tasks of the working-level committee will be to gather information relating to the overall relationship between the two nations, including the number of researchers of each nation in the other nation's research establishment and the efforts made by each country to encourage comparable access.

This working committee will also deal with the technical and management issues related to cooperative activities under the agreement, except for those projects that might have separate management mechanisms.

Finally, the joint high-level advisory panel is intended to be a source of information and advice about the issues of importance to both countries in science and technology and the smooth implementation of the agreement. As you may have noticed, it is intended that that group will be composed primarily of individuals from the private sector.

One of the significant features of this agreement is a section that strengthens the overall relationship in science and technology between the two countries through the implementation of steps such as continuing commitments to open research environments and to improving language-training programs. It also requires each side to provide opportunities for foreign nationals and to encourage them to take advantage of those opportunities.

Additionally, scientific and technical reports stemming from publicly financed work will be made available to the public through publication in the open literature.

This particular section is extremely important, Mr. Chairman, because presently, as has already been mentioned this morning, there are far more Japanese in U.S. institutions than there are Americans in Japanese institutions. Thus, many Japanese are very knowledgeable about the United States and the research activities here.

There does not yet exist anything that approaches a network of American students and scientists who have studied and worked in Japan and who can give advice, encouragement and counsel to younger scientists who might be thinking of studying in Japan.

So through this agreement, we hope to begin to establish now a generation of young American scientists who consider working in Japan as readily as working in Europe or Canada. We envision many situations where a postdoctoral research worker who has done research work in Japan under this agreement returns to a prestigious teaching or other position in the U.S. and is in the position to encourage his students and his coworkers to study Japanese

and apply for positions with Japanese colleagues with whom they have established contact.

Step-by-step, the plan and the hope is that in this manner, the current imbalance will be reduced. That is not going to happen overnight. It is going to take time and it will take some money. The NSF has already committed resources to funding American scientists and engineers in Japan.

The Prime Minister of Japan, Mr. Takeshita, offered the United States $4.8 million toward this effort in January of this year. On its own, the Government of Japan has begun to fund postdoctoral fellowships for Americans and the relevant Japanese ministries are participating in that program. This year alone, the Ministry of Education in Japan announced 50 fellowships, as has the Science and Technology Agency, so it is a promising beginning, Mr. Chairman, and we anticipate that many more fellowship programs will follow.

Now that this agreement is in place, we are aiming for rapid implementation. We will initiate activities under this agreement with the joint working-level committee meeting to be held, we hope now in September, followed by a joint high-level committee meeting, perhaps as early as October.

The cooperative activities, then, that are initiated under this agreement will be consistent with the goals, priorities and policies of the United States Government.

In sum, Mr. Chairman, this agreement is designed to strengthen the scientific and technological relationship with our strong ally and friend, Japan. As leaders in the fields of S&T, we believe that our two nations are much, much stronger working in tandem than we will be isolated from each other.

Although at times, we will be competitors, especially in the commercial areas of science and technology, we can serve ourselves and the world more effectively if our governments support research together. We intend that to happen under this agreement.

With our counterbalancing world-class expertise, a science establishment that is working closely together will provide a basis for new developments and a better world standard of living.

Mr. Chairman, that concludes my prepared remarks and I would be pleased, of course, along with my associates here, to discuss any questions you may have. Thank you.

[The prepared statement of Mr. Bernthal follows:]

STATEMENT OF

DR. FREDERICK M. BERNTHAL
ASSISTANT SECRETARY OF STATE
FOR OCEANS, INTERNATIONAL ENVIRONMENTAL AND SCIENTIFIC AFFAIRS

BEFORE THE

SUBCOMMITTEE ON
INTERNATIONAL SCIENTIFIC COOPERATION
AND THE SUBCOMMITTEE ON
SCIENCE, RESEARCH AND TECHNOLOGY
COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

JULY 13, 1988

MR. CHAIRMEN AND MEMBERS OF THE SUBCOMMITTEES, IT IS A PLEASURE TO HAVE THIS OPPORTUNITY TO DISCUSS THE AGREEMENT BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF JAPAN ON COOPERATION IN RESEARCH AND DEVELOPMENT IN SCIENCE AND TECHNOLOGY. THIS AGREEMENT WAS SIGNED BY PRESIDENT REAGAN AND PRIME MINISTER TAKESHITA ON JUNE 20 IN TORONTO. IT HAS A DURATION OF FIVE YEARS AFTER WHEN IT MAY BE RENEWED.

WE CONSIDER THIS S&T AGREEMENT TO BE A MODEL INTERNATIONAL ACCORD. THROUGH THIS AGREEMENT, THE U.S. AND JAPAN -- THE WORLD'S LEADERS IN SCIENCE AND TECHNOLOGY -- HAVE JOINED IN A NEW PARTNERSHIP BASED ON EQUALITY, RECIPROCITY AND COMPARABILITY. THIS AGREEMENT IS DESIGNED TO STRENGTHEN BILATERAL COOPERATION BETWEEN OUR TWO COUNTRIES AND TO ENHANCE OUR SCIENTIFIC EXCHANGE. WE BELIEVE THAT THE TEMPLATE SET OUT IN THIS AGREEMENT WILL RESULT IN SIGNIFICANT GAINS FOR BOTH NATIONS' SCIENCE ESTABLISHMENTS.

THIS HEAD-OF-GOVERNMENT AGREEMENT IS AN UMBRELLA AGREEMENT AND

SUPERSEDES THE ONE SIGNED BY THE AMERICAN PRESIDENT AND JAPANESE PRIME MINISTER IN 1980. IN ADDITION TO PROVIDING AN UMBRELLA FOR AGENCY-TO-AGENCY MEMORANDA OF UNDERSTANDING FOR SPECIFIC COOPERATIVE PROJECTS, THE NEW AGREEMENT ESTABLISHES A FRAMEWORK OF PRINCIPLES FOR OUR OVERALL GOVERNMENT-TO-GOVERNMENT SCIENTIFIC AND TECHNOLOGICAL RELATIONSHIP WITH JAPAN. THE PRINCIPLES INCLUDE:

- SHARED RESPONSIBILITIES AND MUTUAL AND EQUITABLE CONTRIBUTIONS AND BENEFITS, COMMENSURATE WTH THE TWO NATIONS' RESPECTIVE SCIENTIFIC AND TECHNOLOGICAL STRENGTHS AND RESOURCES;
- COMPARABLE ACCESS TO SCIENTIFIC INFORMATION AND MAJOR GOVERNMENT-SPONSORED OR GOVERNMENT-SUPPORTED PROGRAMS AND FACILITIES;
- ADEQUATE AND EFFECTIVE PROTECTION AND DISTRIBUTION OF INTELLECTUAL PROPERTY RIGHTS BOTH INTRODUCED AND CREATED DURING THE COURSE OF COLLABORATION;
- WIDEST POSSIBLE DISSEMINATION OF INFORMATION CONSISTENT WITH APPLICABLE NATIONAL LAWS AND REGULATIONS, INCLUDING THOSE RELATED TO SECURITY; AND
- SHARED COSTS OF COLLABORATION TAKING INTO ACCOUNT RESPECTIVE RISKS, BENEFITS AND MANAGEMENT SHARES.

IN ADDITION TO THOSE PRINCIPLES, THE AGREEMENT SETS FORTH PROVISIONS FOR COOPERATIVE ACTIVITIES UNDER THIS AGREEMENT. IT STATES THAT THE PROJECTS UNDER THIS AGREEMENT SHOULD BE OF NATIONAL IMPORTANCE TO BOTH COUNTRIES AND SHOULD BE UNDERTAKEN IN FIELDS WHERE EACH NATION HAS COMPLEMENTARY AND WORLD CLASS

EXPERTISE. THUS, AREAS IN WHICH ONE NATION MAY NOT HAVE EITHER SIMILAR OR AT LEAST COUNTERBALANCING EXPERTISE WOULD NOT BE AVAILABLE FOR COOPERATION UNDER THE AGREEMENT.

WE HAVE AGREED TO FOCUS OUR INITIAL RESEARCH IN THE FOLLOWING AREAS OF SCIENCE AND TECHNOLOGY: LIFE SCIENCES, INCLUDING BIOTECHNOLOGY; INFORMATION SCIENCE AND TECHNOLOGY; MANUFACTURING TECHNOLOGY; AUTOMATION AND PROCESS CONTROL; GLOBAL GEOSCIENCES AND THE ENVIRONMENT; JOINT DATABASE DEVELOPMENT AND ADVANCED MATERIALS INCLUDING SUPERCONDUCTORS. THIS LIST IS SUBJECT TO MODIFICATION OF COURSE, AND DEPENDS ON OUR FUTURE ASSESSMENTS OF NATIONAL PRIORITIES.

COOPERATIVE PROJECTS MAY INCLUDE SCIENTISTS FROM ALL SECTORS OF THE RESEARCH COMMUNITY. ANY GOVERNMENT-SPONSORED OR GOVERNMENT-SUPPORTED PROJECT REGARDLESS OF WHETHER IT IS BEING CONDUCTED AT A NON-PROFIT INSTITUTE, UNIVERSITY OR INDUSTRIAL LABORATORY, MAY BE ELIGIBLE FOR COOPERATION UNDER THE AGREEMENT. THIS CONCEPT IS VERY IMPORTANT AND REFLECTS THE DISTINCTIONS IN HOW RESEARCH IS CONDUCTED IN THE U.S. AND JAPAN. IN THE U.S., MOST OF OUR WORLD-CLASS RESEARCH IS PERFORMED IN UNIVERSITIES AND NON-PROFIT INSTITUTES AND THE RESULTS ARE READILY AVAILABLE TO THE PUBLIC. SIMILAR RESEARCH IN JAPAN TAKES PLACE IN THE INDUSTRIAL SECTOR. AT THE SAME TIME, THE AGREEMENT ALLOWS EACH PARTY SOME FLEXIBILITY TO GIVE DUE CONSIDERATION TO CERTAIN GOVERNMENT-SPONSORED OR SUPPORTED PROGRAMS WHICH FOR VARIOUS REASONS, SUCH AS NATIONAL SECURITY, SHOULD NOT BE ELIGIBLE FOR JOINT PROJECTS.

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THIS AGREEMENT ALSO IS A HALLMARK IN THAT IT SETS OUT SPECIFIC INTELLECTUAL PROPERTY RIGHTS PROVISIONS FOR COOPERATION. IT PROTECTS, FOR INSTANCE, BUSINESS CONFIDENTIAL INFORMATION AND THE DISTRIBUTION OF RIGHTS TO INVENTIONS, COPYRIGHTS AND MASK WORKS.

WE WERE DETERMINED TO RECOGNIZE THE CONTRIBUTIONS OF EACH SIDE IN THE ASSIGNMENT OF RIGHTS TO INTELLECTUAL PROPERTY GENERATED AS A RESULT OF COOPERATION UNDER THIS AGREEMENT. THUS, AS A GENERAL PRINCIPLE, IN SITUATIONS WHERE AN INVENTION MAY BE GENERATED WHILE A SCIENTIST IS VISITING ANOTHER FACILITY AND IT IS ANTICIPATED THAT THE PERSONNEL AT THE HOST FACILITY WILL MAKE A MAJOR AND SUBSTANTIAL CONTRIBUTION TO THE PROGRAMS OF THE COOPERATIVE ACTIVITY, THE HOST INSTITUTION HAS THE RIGHT OF FIRST REFUSAL TO INVENTION RIGHTS IN ALL COUNTRIES. IN THE CASE WHERE THE HOST IS NOT EXPECTED TO MAKE A SIGNIFICANT CONTRIBUTION TO THE COOPERATIVE PROGRAMS THE VISITOR HAS THE FIRST RIGHT OF REFUSAL IN HIS OR HER COUNTRY. IN VERY SPECIFIC SITUATIONS INVOLVING JOINT RESEARCH PROJECTS WITH AN AGREED RESEARCH WORK SCOPE, THE AGREEMENT PROVIDES FOR ALTERNATIVE BUT EQUITABLE ARRANGEMENTS TO BE MADE.

AS REGARDS THE SECURITY RELATED LANGUAGE IN THIS AGREEMENT, I WISH TO UNDERSCORE THAT IT SUPPORTS THE WIDEST POSSIBLE DISSEMINATION OF INFORMATION RESULTING FROM COOPERATIVE ACTIVITIES, SUBJECT TO NATIONAL SECURITY REQUIREMENTS, INCLUDING THOSE RELATED TO EXPORT CONTROL AND TO THE NEED TO PROTECT

INTELLECTUAL PROPERTY RIGHTS. IT ALSO STIPULATES THAT NO CLASSIFIED WORK WILL BE CONDUCTED UNDER THIS AGREEMENT. IT CONFIRMS THAT EACH COUNTRY'S NATIONAL EXPORT CONTROL REGIMES ARE APPLICABLE UNDER THE AGREEMENT.

AN IMPORTANT PROVISON OF THIS AGREEMENT CREATES A MULTI-TIERED MANAGEMENT STRUCTURE TO OVERSEE ITS OBJECTIVES. IT CONSISTS OF THREE GROUPS: A GOVERNMENT HIGH LEVEL JOINT COMMITTEE, TO BE CO-CHAIRED ON THE U.S. SIDE BY THE PRESIDENT'S SCIENCE ADVISOR, WHICH WILL CONSIDER THE OVERALL S&T RELATIONSHIP BETWEEN THE TWO COUNTRIES AS WELL AS SPECIFIC ISSUES WHICH MAY ARISE, A GOVERNMENT WORKING LEVEL COMMITTEE WHICH WILL DO THE ESSENTIAL STAFF WORK, AND A JOINT HIGH LEVEL ADVISORY PANEL TO BE COMPRISED OF EMINENT REPRESENTATIVES OF ACADEMIA, INDUSTRY AND OTHER SCIENTIFIC ORGANIZATIONS.

THE JOINT HIGH LEVEL COMMITTEE WILL ASSESS, AMONG ITS OTHER DUTIES, MAJOR DEVELOPMENTS WITH RESPECT TO THE AGREEMENT AND EACH PARTY'S SCIENCE POLICIES, RESEARCH ESTABLISHMENTS, AND ISSUES RELATED TO COMPARABLE ACCESS FOR EACH NATION'S SCIENTISTS TO THE OTHER NATION'S FACILITIES AND INFORMATION.

CHIEF AMONG THE TASKS OF THE WORKING LEVEL COMMITTEE WILL BE TO GATHER INFORMATION RELATING TO THE OVERALL RELATIONSHIP BETWEEN THE TWO NATIONS INCLUDING THE NUMBERS OF RESEARCHERS OF EACH NATION IN THE OTHER'S RESEARCH ESTABLISHMENT AND THE EFFORTS MADE BY EACH COUNTRY TO ENCOURAGE COMPARABLE ACCESS. THIS COMMITTEE WILL ALSO DEAL WITH TECHNICAL AND MANAGEMENT ISSUES

RELATED TO COOPERATIVE ACTIVITIES UNDER THE AGREEMENT, EXCEPT FOR THOSE PROJECTS THAT MAY HAVE SEPARATE MANAGEMENT MECHANISMS.

THE JOINT HIGH LEVEL ADVISORY PANEL IS INTENDED TO BE A SOURCE OF INFORMATION AND ADVICE ABOUT ISSUES OF IMPORTANCE TO BOTH COUNTRIES IN SCIENCE AND TECHNOLOGY AND THE SMOOTH IMPLEMENTATION OF THE AGREEMENT. IT WILL BE COMPRISED PRIMARILY OF INDIVIDUALS FROM THE PRIVATE SECTOR.

ONE OF THE SIGNIFICANT FEATURES OF THIS AGREEMENT IS A SECTION THAT STRENGTHENS THE OVERALL RELATIONSHIP IN SCIENCE AND TECHNOLOGY BETWEEN THE TWO COUNTRIES THROUGH THE IMPLEMENTATION OF STEPS SUCH AS CONTINUING COMMITMENTS TO OPEN RESEARCH ENVIRONMENTS, AND TO IMPROVING LANGUAGE TRAINING PROGRAMS. IT ALSO REQUIRES EACH SIDE TO PROVIDE OPPORTUNITIES FOR FOREIGN NATIONALS AND TO ENCOURAGE THEM TO TAKE ADVANTAGE OF THOSE OPPORTUNITIES. ADDITIONALLY, SCIENTIFIC AND TECHNICAL REPORTS STEMMING FROM PUBLICLY FINANCED WORK WILL BE MADE AVAILABLE TO THE PUBLIC THROUGH PUBLICATION IN THE OPEN LITERATURE.

THIS PARTICULAR SECTION IS EXTREMELY IMPORTANT. PRESENTLY, THERE ARE FAR MORE JAPANESE IN U.S. INSTITUTIONS THAN THERE ARE AMERICANS IN JAPANESE INSTITUTIONS, AND THUS MANY JAPANESE THAT ARE KNOWLEDGEABLE ABOUT THE UNITED STATES. THERE DOES NOT YET EXIST A NETWORK OF AMERICAN STUDENTS AND SCIENTISTS WHO HAVE STUDIED AND WORKED IN JAPAN WHO CAN GIVE ADVICE, ENCOURAGEMENT AND COUNSEL TO YOUNGER SCIENTISTS WHO MAY BE THINKING OF WORKING OR STUDYING IN JAPAN.

THROUGH THIS AGREEMENT WE HOPE TO ESTABLISH A GENERATION OF YOUNG AMERICAN SCIENTISTS WHO CONSIDER WORKING IN JAPAN AS READILY AS WORKING IN EUROPE OR CANADA. WE ENVISION MANY SITUATIONS WHERE A POST-DOCTORAL CANDIDATE WHO HAS DONE RESEARCH IN JAPAN UNDER THIS AGREEMENT RETURNS TO A PRESTIGIOUS TEACHING POSITION IN THE U.S. AND IS IN THE POSITION TO ENCOURAGE OTHERS TO STUDY JAPANESE AND APPLY FOR POSITIONS WITH JAPANESE COLLEAGUES WITH WHOM THEY HAVE ESTABLISHED CONTACT. STEP BY STEP WE HOPE THAT IN THIS MANNER, THE CURRENT IMBALANCE WILL BE REDUCED.

THIS APPROACH WILL TAKE BOTH TIME AND FUNDING. THE NSF HAS COMMITTED RESOURCES TO FUNDING AMERICAN SCIENTISTS AND ENGINEERS IN JAPAN. PRIME MINISTER TAKESHITA OFFERED THE UNITED STATES $4.8 MILLION TOWARD THIS EFFORT IN JANUARY OF THIS YEAR. ON ITS OWN, THE GOVERNMENT OF JAPAN HAS BEGUN TO FUND POST-DOCTORAL FELLOWSHIPS FOR AMERICANS, AND THE RELEVANT JAPANESE MINISTRIES ARE PARTICIPATING. THIS YEAR ALONE, THE MINISTRY OF EDUCATION ANNOUNCED 50 FELLOWSHIPS AS HAS THE SCIENCE AND TECHNOLOGY AGENCY. THIS BEGINNING IS PROMISING, AND WE ANTICIPATE THAT MANY MORE FELLOWSHIP PROGRAMS WILL FOLLOW.

NOW THAT THIS AGREEMENT IS IN PLACE, WE ARE AIMING FOR RAPID IMPLEMENTATION. WE WILL INITIATE ACTIVITIES UNDER THIS AGREEMENT WITH A JOINT WORKING LEVEL COMMITTEE MEETING TO BE HELD IN THE EARLY FALL, FOLLOWED BY A JOINT HIGH LEVEL COMMITTEE MEETING. THE COOPERATIVE ACTIVITIES THAT ARE INITIATED UNDER

THIS AGREEMENT WILL BE CONSISTENT WITH THE GOALS, PRIORITIES AND POLICIES OF THE UNITED STATES GOVERNMENT.

IN SUM, MR. CHAIRMEN, THIS AGREEMENT IS DESIGNED TO STRENGTHEN THE SCIENTIFIC AND TECHNOLOGICAL RELATIONSHIP WITH OUR STRONG ALLY, JAPAN. AS THE LEADERS IN THE FIELDS OF S&T, WE BELIEVE THAT OUR TWO NATIONS ARE MUCH, MUCH STRONGER WORKING IN TANDEM THAN ISOLATED FROM EACH OTHER. ALTHOUGH AT TIMES OUR NATIONS WILL BE COMPETITORS, ESPECIALLY IN THE COMMERCIAL AREAS OF SCIENCE AND TECHNOLOGY, WE CAN SERVE OURSELVES AND THE WORLD MORE EFFECTIVELY IF OUR GOVERNMENTS SUPPORT RESEARCH TOGETHER. THEY WILL UNDER THIS AGREEMENT. WITH OUR COUNTERBALANCING WORLD CLASS EXPERTISE, A SCIENCE ESTABLISHMENT THAT IS WORKING CLOSELY TOGETHER WILL PROVIDE A BASIS FOR NEW DEVELOPMENTS AND A BETTER WORLD STANDARD OF LIVING.

MR. CHAIRMEN, THIS CONCLUDES MY REMARKS. I WOULD BE PLEASED TO TAKE YOUR QUESTIONS.

Mr. WALGREN. Thank you, Dr. Bernthal, and at this point, we have to suspend for 10 minutes or thereabouts. Mr. Hall will be back first, but we are taking turns responding to a vote over on the floor and so we'll be back resuming shortly.

Thank you very much.

[Recess.]

Mr. HALL. [presiding] In the interest of time, we'll continue to move and I think it would be proper to tell you, Dr. Bernthal, that we are recording everything and the fact that all the members aren't here shouldn't give you too much concern because it's more important for the staff to hear your testimony and tell the members what you said and to put it into the record and everything does go into the record and we get copies and that's what we basically work from, so—and this late in the day, members have other committee meetings in almost every direction today. Chairman Walgren will be back, but we'll get under way.

Mr. de Vos, you are here. Do you—we certainly extend you the courtesy of making any kind of an opening statement you want to make or are you here to answer questions or—

Mr. DE VOS. Thank you, Mr. Chairman.

Mr. HALL. The Chair recognizes you at this time.

Mr. DE VOS. Thank you. I work for Dr. Bernthal and, of course, I agree thoroughly with my boss, so essentially, I am here to answer questions, as are other members of other agencies of—

Mr. HALL. Being of sound mind, you agree with everything he said in his statement.

Mr. DE VOS. Absolutely.

Mr. HALL. Okay. I think we might get under way and get kicked off by asking a few questions. We know that your testimony indicates that you think this to be a good model international accord. Do you see this as an example—or I guess, it's a-finished product, so you probably see it as an example to be followed with other countries.

Is there anything different about our relationship with the Japanese that might not make this a sample type or an example accord? It seems to me there should be. There probably is.

Mr. BERNTHAL. There certainly are special elements in our relationship with any particular country, Mr. Chairman, and you're quite right, particularly in the case of Japan. This is a special relationship and one that we place great emphasis on and, of course, value very highly in the area of science and technology.

Incidentally, Ambassador de Vos is permitted to speak his mind on any issue he wishes. We have no muzzling policy that I'm aware of, so he will be asked to comment, from time to time since he was, the principal negotiator of this agreement.

But I would just point to one particular element here that is very special about Japan. In my testimony, I referred to the status of Japan as certainly one of the most technologically advanced countries in the world. Without doubt, they have become one of the greatest economic powers in the world today and, therefore, I would view this agreement as something of a model for many other countries which we expect and hope will eventually achieve the economic success and the development and the status in the world economic order that Japan has. So indeed, in a number of areas

where we are now competitors, but where we agree that basic research in our common interests, and even applied research in some areas in our common interests, and in the interests of the world is something that we both should pursue.

So the short answer is yes, that it is something of a model, but a model between two highly advanced and capable countries.

Mr. HALL. How does it really fit in with the cooperative activities in the area of space exploration? It seems like that's so very important for these two countries and it's such a natural.

Mr. BERNTHAL. Well, it certainly is and, in fact, as I know you're aware, we have recently concluded a separate agreement with a number of our allies and friends to pursue the Space Station project and Japan is a party to that agreement and those—the elements of that agreement will be pursued within the framework of that separate agreement. So the details of that will be worked out in accordance with the principles adopted under that space station agreement.

We also have cooperation with the Japanese in space exploration under separate memoranda of understanding. These projects tend to be smaller and they are identified by our senior standing liaison group. We don't expect that those will fall into the new agreement, Mr. Chairman.

Mr. HALL. You're not speaking specifically there of government-funded work, are you? Are you talking about the work that will be funded at smaller—at private industrial labs?

Mr. BERNTHAL. The framework of this agreement, I must stress, is in every case for government-funded research—in other words, it may be government-funded research, as is common in our country at the national laboratories, at the universities and, indeed, occasionally in the private sector. It is more common in Japan to have government funding apply to the private sector, but government funding is the key phrase here that would find the application of this agreement.

Mr. HALL. Can you tell us what consultation was entered into with the men and women of U.S. industry along this particular line.

Mr. BERNTHAL. Well, there was not a great deal of advance consultation with members of industry, but certainly those in the private sector are well aware of the negotiation of this agreement. Again, I would stress the government-funding aspect of the agreement. Though, of course, in no circumstance is a particular private industry and particularly no private industry that is funding its own basic or applied research, in no circumstance are they required to enter into an agreement, or if it's their own funding of research, does this agreement even apply to them. So again, I stress the government-funded research.

Mr. HALL. You've listed areas of science and tech in which the two countries have agreed to cooperate. What areas and projects will be most useful to the United States? You know, a contract—everybody enters into a contract because they think they have the best end of it, whether it's a marriage contract or international compact or whatever. What's in it for us? What's going to be the most beneficial to U.S. competitiveness that grows out of this?

Mr. BERNTHAL. Well, I suspect that you can probably about guess some of the areas that would be of great interest to us. The Japanese ability to proceed with automation and industrial processes is one that has become something of the envy of the world, I must say, and that certainly is one area that we would hope to have a very active and fruitful exchange that would accrue to the benefit—particular benefit of the U.S. Generally speaking, I would say, as we've discussed a little bit earlier, in many of the somewhat more applied areas, such as automation, those are areas where Japan has very often taken the lead.

So information technology may be another area where we could have a good deal to learn from the Japanese, but there certainly are many such areas that we hope to—

Mr. HALL. Any of our labs going to be off limits?

Mr. BERNTHAL. Are any of our labs going to be off limits?

Mr. HALL. Under this agreement?

Mr. BERNTHAL. Well, certainly—

Mr. HALL. Sematech or super conductivity research or any—

Mr. BERNTHAL. Sematech, as you know, is funded by the Department of Defense. This agreement specifically includes—excludes, pardon me, specifically excludes defense-related activities and so Sematech would not be encompassed by this agreement as currently envisioned.

Mr. HALL. Can it—and I'll conclude here so the gentleman from New York can give whatever statement he wants and make what inquiries he wants to make—but just talk a little bit about the Space Station, how this is going to affect bilateral discussions on funding of SSC also.

Mr. BERNTHAL. Well, generally, those large projects will be carried out—the negotiations for those projects and the solicitation of funds for those projects. In the case of the Space Station, that process is largely completed and we already have a framework agreement, including a commitment, as you know, from the Government of Japan for—

Mr. HALL. Yes, that's what I am inquiring about, the agreement that's in place, how does this affect that? Does this ratify it or does it enlarge it?

Mr. BERNTHAL. This does not specifically affect that agreement. The principles that are embodied in Article 1 of this agreement, however, certainly apply across the board, that there should be mutual benefit, reciprocity, broadly speaking, across the board, where perhaps the contribution of the U.S. may be somewhat greater in the Space Station arrangement, the contribution in an entirely different area, whether or not the SSC—I suspect there – the U.S. cooperative—or rather, contribution will be greater as well.

Nevertheless, in Article 1 the principle is established that broadly speaking, even though there may be separate negotiations and agreements in the areas you've mentioned, there should be a reciprocity and comparability of overall contribution. So the answer is no, this will not specifically affect those agreements, except as regards to the general principles, as I understand.

I think Ambassador de Vos wants to make a comment here.

Mr. DE VOS. Mr. Chairman, just a point of clarification—

Mr. HALL. Mr. de Vos.

Mr. DE VOS. —on that particular issue.

As Dr. Bernthal said, the general principles of this agreement will be pertinent to the Space Station and other large projects, large science projects. However, we consciously decided that the management structure—that the Space Station will have its own management structure, presumably SSC will as well, and that that should really be done by the agencies that are directly involved and that management should not be undertaken by more—at the political level.

So we tried to separate that out in the sense of not incorporating it directly under this agreement.

A second point I'd like to make is you asked Dr. Bernthal earlier, had we consulted with the private sector and in our preliminary discussion—in fact, the Executive Branch did have contact with the private sector. In 1986, the White House Science Council, which is composed of people from the private sector, from IBM, AT&T, et cetera, did meet and had discussions on how to approach the negotiation with the Japanese, so we did—

Mr. HALL. I guess I had presumed that you had done that, because otherwise you could have some objection to their researchers working in their labs and that you'd have to delineate pretty clearly what the ground rules were. But you have done that and—

Mr. DE VOS. We have had preliminary—

Mr. HALL. —to your satisfaction and to theirs.

Mr. DE VOS. That's correct, sir.

Mr. Hochbrueckner, the gentleman from New York. I recognize you at this time for as much time as you need to take.

Mr. HOCHBRUECKNER. Thank you, Mr. Chairman.

I don't have a statement, but I do have several questions for Dr. Bernthal. I'm concerned if we have any plans based on the present direction we're going, with regard to collaborating with the Japanese relative to superconductivity research, as well as in the area of X-ray lithography. As you pointed out, Sematech is funded by DOD money and, therefore, is off limits. However, as you know, X-ray lithograph, which will produce the next generation of computer chips, is, in fact, jointly funded by DOD and DOE. So my question there is, on superconductivity, in terms of collaboration, as well as on X-ray lithography and, of course, on the accompanying syncrotron technology, which is the producer of the X-rays needed for this process?

Mr. BERNTHAL. I will turn in a moment to Mr. Tom Owens, who, as you know, serves with the National Science Foundation. He may wish to comment on the details of some of the areas that you mentioned.

I would expect, picking one area of great interest these days, in the superconductivity area, that those collaborations would tend toward the basic research area, rather than the applied areas where, as you know, there is a very keen competition, not only between the parties to this agreement, but with countries all over the world in the commercial sector.

I'll ask Mr. Owens to comment on that in further detail, and I think a similar statement would apply to X-ray lithography, devel-

oping of templates and what not for integrated circuits, but let me see if Mr. Owens wishes to comment on that.

Mr. OWENS. I don't have anything specific to add except perhaps something about the Japanese capability—

Mr. HALL. Identify yourself, if you would, for the record.

Mr. OWENS. Yes, my name is Owens, Charles T. I work at the National Science Foundation, Division of International Programs.

There are Japanese capabilities in high-temperature superconducting. They have made invitations to us to participate in a joint industry/government-funded institute for superconducting research in Japan. There have been problems about the cost of that activity, but it is available to us. It is open to us at this time.

There are significant research programs under way in industry and in the universities on high-temperature superconducting. What we have to do is test the availability of those programs to us. Some of them are proprietary and will not likely be open to us. Some of them should be open, those that are government-funded.

In terms of some of the other capabilities that you mentioned, I expect that the programs on the U.S. side, which have applications to work that's classified, will not be available since none of the work in this—covered by the agreement is classified or will be—involve classified material.

Also, the Japanese do have some capabilities of their own in syncrotron light sources and perhaps there's a possibility for a beneficial exchange of information on those materials as well.

Mr. HOCHBRUECKNER. Okay. Dr. Bernthal, on page 7 of your testimony, you talk about, "Through this agreement," you quote, "we hope to establish a generation of young American scientists who consider working in Japan as readily as working in Europe or Canada."

In that kind of situation, along with the funding that is also mentioned in here, how do you think our young scientists will fit in with the Japanese in terms of our concern about patent infringement and what happens if one of our young scientists goes over there under this program and discovers, instead of the one-two-three formula, the four-five-six formula for a new superconducting metal? How will that be handled? What provision is there to allow us to capture that technology and keep it?

Mr. BERNTHAL. Let me make clear, as a matter of, I guess somewhat of personal experience—I was once a young scientist. I'm not sure I'm—I'd like to think I'm still a scientist; I know I'm not so young anymore.

Most young scientists that go abroad to study in the manner as envisioned here and certainly is most common, are going there, having completed their graduate studies, very often as postdoctoral students, and in those particular cases, although they may well, for example, end up working perhaps in Japan on basic research in superconductivity, those individuals generally do not have in mind that they are going to a lab for personal profit; that is, to be able to develop a patentable process of some kind.

Now, it is not impossible that something like that can arise, but in the first instance, I would say, with young people especially, having just completed their graduate work, that is not the usual case. This agreement hopes to promote that front end, at least fi-

nally to get young people in Japanese laboratories, in Japanese industrial laboratories, as well as government laboratories, and to begin a process that long ago was open to the Japanese in our country and, of course, to many other countries within our own borders as well.

So there are provisions for the protection of intellectual property rights for patentability within this agreement and, in fact, those provisions are well spelled out. For example, if a Japanese researcher comes here to work in one of our laboratories, the usual arrangement and understanding in those circumstances is that the laboratory is generally viewed as making the principal contribution and, therefore, would have first rights of refusal for any patentable process.

If it is a young researcher from our country going to Japan, the same circumstance would normally apply. On the other hand, if an older researcher, a more experienced professional, a professor from a university perhaps, in either direction, works in a laboratory, if the judgment is made—and those judgments can be made by the working group involved here, that that individual will make the principal contribution, then this agreement provides that he would have the first rights of refusal with respect to any process or patent that might arise from that research.

If the situation is unclear, then it would be a matter for negotiation, as provided under this agreement. So I hope that gives you some sense of the protections that we believe are built in here.

If I may return for a moment to your earlier question on—

Mr. HOCHBRUECKNER. But let me just respond to that and then we'll return.

Mr. BERNTHAL. Yes.

Mr. HOCHBRUECKNER. So actually the program would encourage us to send them our older, more experienced professionals and to take their younger, less experienced professionals?

Mr. BERNTHAL. No, I wouldn't characterize it that way at all. In fact—

Mr. HOCHBRUECKNER. Well, I think that would be the mood of Congress because we would like to have the patents, as it turns out, I believe. So—but go ahead with your other point.

Mr. BERNTHAL. We're hoping to get a new generation of young people that I hope first of all learn to speak the Japanese language so the research that they're able to carry out is most profitable to both sides, and secondly, become accustomed to working in Japan, and that's something we just haven't had up to this point.

I did want to get back, if I may, for a moment, Mr. Chairman, to the earlier question on superconductivity, though, and the provisions that are anticipated here for managing and monitoring those developments and I'd like to turn to Ms. Wince, from the President's Office of Science and Technology Policy, to make a few comments on the working group, the oversight group that they have established and that and some other areas that you have mentioned.

Mr. HALL. We will recognize Ms. Wince in just a moment, but do remember to come back to the gentleman from New York's question, being a little more specific, I think, about the long-term numerical goals. That's what you're really looking for, as to what

we're really going to get out of it, and be specific about the number of U.S. researchers we're going to have in Japan, and be specific about the Japanese language training for U.S. scientists.

I think those are the hard, bedrock problems that we've had in the past and tell us a little about how we've addressed those and just what we are going to do it—funding of basic R&D by Japan. We'll go ahead and recognize Deborah, Ms. Wince, at this time.

I hope you make a note of those and give the gentleman the benefit of your analysis of this and what really has grown out of this agreement, along those very practical lines.

Thank you.

Ms. Wince.

Ms. WINCE. Thank you, Mr. Chairman.

Let me briefly tell you in more detail what our strategy is going to be for implementing potential research projects and new initiatives in the high-priority areas that are enumerated in the agreement.

What we are going to do is utilize the policy-level structure we have in our government for determining governmentwide policies in various areas of research. As you know, we have an organization called the Federal Coordinating Council for Science and Technology (FCCST), which has a number of high-level committees, such as the Committee on Life Sciences, the Committee on Materials, the Committee on Earth Sciences, that are chaired by top-level R&D officials in our government. We are going to use the FCCST structure to begin the process of identifying and planning potential research projects with the Japanese in these high-priority areas so that whatever we do down the road will be integrated fully into our domestic R&D activities.

This is particularly important for the superconductivity initiative, which, as you know, is a presidential initiative. The President has outlined a major program in superconductivity and the FCCST Committee on Materials will be tasked to design what we would like to see as potential research collaboration with the Japanese in the basic research area, in the area that is precompetitive R&D, not in the commercial end.

Thank you.

Mr. HALL. Thank you for that.

Has the gentleman from New York concluded his questions?

Mr. HOCHBRUECKNER. Yes, thank you, Mr. Chairman.

Mr. HALL. Chairman Walgren, do you have questions? We'll certainly recognize you at this time.

Mr. WALGREN. Thank you, Mr. Chairman.

You characterized the agreement as an umbrella agreement, and I gather there are these several parts, one of which is the cooperative project, but the other is the principles of comparable access?

Mr. BERNTHAL. Yes, that's right.

Mr. WALGREN. And that applies beyond the cooperative projects and is fundamental to the relationship as a whole; is that—

Mr. BERNTHAL. Yes, that's right. Mr. Chairman, you've put your finger on a question, since I, as you know, came into this post just at the conclusion of this agreement, you put your finger on a question that I asked myself within the last few days and Article I lays out this broad set of principles that will apply not only to the spe-

cific program of science and technology cooperation envisioned under the more detailed discussions in Articles II through X, but will also apply to a number of other agreements that fall under this broad umbrella of principles, for example, the space station cooperation, possible cooperation on the Superconducting Super Collider facility and any one of a number of other possibilities there.

So Article I really lays out a set of broad principles of reciprocity and comparability that, generally speaking, should apply throughout our relationship in these technical areas, whether or not in a particular case—and even in a particular—I'll call it a subumbrella agreement, such as the Space Station or their SSC collaboration, the contribution of one country or the other country might be somewhat greater.

The idea is that, broadly speaking, there should be comparability.

Mr. WALGREN. The word that I focus on there is the word you use throughout, which would mean more than just broadly speaking, but across the board. Is that—

Mr. BERNTHAL. That's right.

Mr. WALGREN. —the wrong impression?

Mr. BERNTHAL. No, that's exactly right.

Mr. WALGREN. And so this should cover every agreement that we have with the Japanese, every individual agreement and when you say that it applies to a number of them, we're really talking about all of them, is that right?

Mr. BERNTHAL. That's right. Those broad principles of Article I and then Articles II and X go on to delineate what is in a sense, a separate subset here. We might have a head that is Article I and then we'll have a subset that is Articles II and X applying to specific research collaboration and science technology. Next to that, we might put the space station collaboration; next to that, the SCC, which is, as you know, headed by DOE and so on.

Mr. WALGREN. Could we have for submission, a list of the agreements that you would anticipate this treaty to cover in the general forum?

Mr. BERNTHAL. Certainly.

Mr. WALGREN. I gather at the negotiation, there was not the thought that, well, look, here we have this list and these agreements are not covered, but these are, so there must be a list that is comprehensive that you should be able to give to us of the range of our agreements with the Japanese.

Mr. BERNTHAL. We will certainly provide that, but let me ask Ambassador de Vos, who was the point man on those negotiations, if he has a comment.

Mr. HALL. Mr. Ambassador, you're recognized.

Mr. DE VOS. Thank you, Mr. Chairman.

In our negotiation, this point was addressed time and time again. There was concern that how can you make this agreement overtake past agreements, and secondly, how do we—the previous presidential agreement, the previous head-of-government agreement—how do we make that pertinent to this one and what about the programs that were being undertaken under the 1980 agreement?

Where we came down—both sides were very concerned that we not have a bunch of orphan agreements running around, that we

not terminate them if they're good agreements and so the actual cooperation that was going on under the 1980 agreement was also automatically induced into this new agreement. The programs that we were doing—I think there were 11 of them. We can, of course, furnish the committee the exact list of those agreement and the activities under those agreements—I'm sorry, under this project.

[See Appendix II for Cooperative Activities Between Japan and the U.S.]

The other agreements, we could not automatically overtake them with this agreement, but what we intend to do is as these agreements—as we look at them and review them and see how they mesh or do not mesh with this umbrella agreement, then we will look at how we renegotiate them to make them coincide with the principles that we have in this agreement here.

So it will not be an automatic process. It is something that we have to look at on an individual basis.

Mr. WALGREN. Do we have plans to look at those agreements on an individual basis?

Mr. DE VOS. Absolutely, Congressman. We have, of course if you look at the structure, we have the high-level working group which can talk about it. We have the working-level group which will actually go into this and this will be done by the Japanese and American sides and look at each of these agreements. That's correct.

Mr. BERNTHAL. And one of the important points provided here and understood in the course of the negotiations is, as I understand it, is that there will be a careful annual review, both at the working-group level within the White House FCCST committees, subcommittees that Ms. Wince described, and ultimately, then, in the meetings of the high-level committee to determine what progress has been made and to make the kind of progress evaluation.

Mr. WALGREN. The high-level group has responsibility for assessing access, as I understand it, and you're having a high-level committee or commission meeting this fall. What's the background preparation of that group going into that meeting on the question of access?

Mr. BERNTHAL. The background work has not begun yet. We are planning to convene the working group in September here in Washington as it's currently planned in preparation for the high-level meeting in October. So those are among the questions that will be addressed when the first meeting of the working-level groups begins this September.

Mr. WALGREN. Well, if I could ask for a submission of some description of the—I suppose in the organization, you use the word, the "tasking" of the group with respect to access—some description of your plans for tasking the working group and the high-level group in anticipation of that first meeting, because I would be very interested in following up and following along the high-level group's consideration of that question and the depth of it and the range of it.

Can you talk a little bit about the—as I understand it, our system is open. By and large, we're doing the basic research in universities or government laboratories, which we opened under this agreement. Much of the Japanese system is done in a private en-

terprise, either orchestrated or also directly funded, I gather, by government.

How are we going to get access to that private-sector activity?

Mr. BERNTHAL. Well, again, I would stress, first of all, that the initial meeting of this working group is going to be a prospective meeting, primarily. It will be trying to assess how we're going to go about the evaluations, the progress that we make. We expect that to be undertaken this September.

But I would stress that the principles of this agreement are that there will be reciprocity and approximate parity, whether it's in access or in other areas. Another principle of this agreement is that there be publication; that there be openness.

In our country, we're used to open publication or publication in the open literature. Any activities carried out under this agreement must also have such open—

Mr. WALGREN. But now in the conversations that led to the agreement on this principle, somehow or other we must have specifically come to grips with this problem, that much—that we want access to—under that provision, that principle, is done in private-sector organizations in Japan. Very little of what this agreement covers is done in private-sector organizations in the United States.

How did we—how did we solve that problem?

Mr. BERNTHAL. First of all, this agreement applies to government-sponsored research, as you know, and in Japan, as I understand it, and perhaps I can turn to the representative from the Department of Commerce or the NSF to get the numbers here—most of the government-funded research in Japan, it is true, is carried out in private industrial laboratories. This agreement would provide for, on the basis of reciprocity, that it would be legitimate for us to ask for access and for our research workers to be open to work with the Japanese researchers on such government-funded research in their private laboratories.

But let me ask whether the representative from the Department of Commerce or the National Science Foundation may want to elaborate on that.

Tom, did you—Maureen?

Mr. HALL. Ms. Smith?

Ms. SMITH. Let me introduce myself if I may. I am Maureen Smith, Deputy Assistant Secretary for Japan in the Department of Commerce.

Mr. Walgren, you certainly have identified what, from our view, is one of the key aspects of the agreement, and you are right. During our negotiation of this agreement, we had not several, but numerous and very protracted negotiations or discussions on exactly that point, of comparable access, and it is certainly understood that it is our objective to obtain access to that portion of Japanese Government-funded research which is conducted in a private or proprietary setting.

And if I may paraphrase that or give you some flavor of the discussion, we said on our part that we define government-funded in the Japanese context as a single yen. If there is a yen of Japanese Government money going into that project, we consider it within the universe that is covered by our request for comparable access.

And the reasoning behind that is when you compare the numbers—and some of those have been thrown around here—about what is the actual amount of Japanese Government funding that goes into R&D or basic science or et cetera, it is not truly comparable because of the fact that the real leverage or the real significance of Japanese Government involvement in the research sector is not measured by the amount of money that is spent. It is by—

Mr. WALGREN. Let me ask what it is—

Ms. SMITH. —the organization—the organization and the designation and the signaling of the priority and the government attention that is being focused on that project.

Mr. WALGREN. Now, if that's true, how do we reach those projects which are essentially orchestrated by the government, but in which there is one single yen?

Ms. SMITH. For the moment, I think we're going to say that there is one single yen—I mean, that there is some government money. What I wanted to say was not that there was no government money, but that the government moneys are not of the magnitude that we would expect. There is government money, but it's quite small, and what I wanted to say is that small amount of money does not accurately reflect the role of the government, but there is government money and that is why, as I say, we said one single yen.

Now, the key—if we come upon such eventualities—but I don't see it on the scope right now—the key thing and the thing that we're going to be looking to is the role of our private-sector advisory group here and particularly you can understand that the Department of Commerce invests an awful lot of importance to the role of the private advisory group, to advise us on areas where there is Japanese research going on that they think is important for our international competitiveness and where they instruct their government negotiators to obtain access.

Mr. BERNTHAL. Mr. Walgren, if I just make one point here, it's a legitimate concern about those areas that might not actually have any Japanese Government money in the industrial laboratory, but that somehow the projects have been coordinated, promoted by the Japanese Government.

That is covered by this agreement, in fact. The words, I believe, are government-supported and government-sponsored. The idea there is to embrace not only those projects that have specific identifiable yens, but those projects that have broad government promotion and support. So—

Mr. HALL. Sounds a little like the term interstate commerce. You just pool almost anything in under it, can't you?

Mr. BERNTHAL. I think in principle that is, of course, the hope, but I'll be quite straightforward to the extent that there is a tradition that may or may not exceed our own—I think the tradition in basic research within Japan in general and Japanese industry, certainly, the Japanese are concerned about that. They feel they need to do more basic research; that the United States has long been recognized as a leader in basic research, so I think we're in pretty good shape there.

The question is, of course, in the more applied areas, whether there may be some cooperation and access there that we would hope to achieve that we haven't achieved in the past.

But again, I stress that under this agreement, anything carried out under this broad agreement—there is to be a parity and a comparability in the ultimate outcome.

Mr. WALGREN. Mr. Chairman, if you would permit—

Mr. HALL. Yes, sir.

Mr. WALGREN. The—I wanted to ask the general question of where the—where the sticking points really were in this negotiation. And I don't know quite how to ask that question and get a complete answer to it. Maybe you'd like to answer that.

Where were the sticking points?

Mr. BERNTHAL. Well, let me just make an introductory comment and then I'm going to turn to the chief negotiator, but my understanding is that there really was quite broad agreement on the general principles that we established. If there is going to be cooperation in science and technology, there should be comparability; there should be openness, publication, equal access.

But given that backdrop, there, of course, are a thousand discussions that went on around that broad agreement and let me ask Ambassador de Vos if he'd care to comment.

Mr. DE VOS. Thank you, Mr. Chairman.

I think it's important to understand that the original draft was our draft, was a U.S. draft, which we presented to the Japanese, and in that draft, we introduced some new concepts in S&T agreements in general.

If you look at normal S&T agreements of the past, if you look at the 1980 agreement, it was essentially two or three pages—I don't have the exact number in front of me, but it was a couple of pages and it was a very broad statement of what we intended to do. We will cooperate; there will be intellectual property rights.

So our new draft was more specific. I know that Mr. Walgren, Congressman Doug Walgren, mentioned that it seemed to him the new draft or the new agreement was still very broad, but in comparative terms, I think it has a lot more detail than the 1980 agreement.

So it took quite a while to explain to the Japanese side why we were insisting upon this very detailed intellectual property rights annex, and we had to explain to the Japanese side exactly what it meant by—in each of the little paragraphs.

So that took considerable time and it took a lot of clarification, I guess on both sides, so that we could really be precise if we were talking about the same thing.

The same concept, for instance, in the—getting at the access question. What exactly and precisely was meant? Does it mean that all proprietary information is open to anybody or do we have certain restraints and certain limits on it?

So I think that—as Dr. Bernthal said, the basic principles we agreed to pretty early—it was really clarifying the specific points that took the time.

Mr. WALGREN. Let me ask, then, what was—was your greatest satisfaction in coming back from this negotiation, the feeling that you got something that wasn't initially agreed to? And what was

your greatest dissatisfaction, that you wanted to get going in that you come back saying, "Gee, it's not really quite there"?

Mr. BERNTHAL. Again, since I wasn't there for the vast majority of this, I'll turn to those who were, but let me say, as one who's come on the scene recently, that one of the key achievements, in my judgment in this agreement, that is being is pursued, as you know, throughout in our attempts to negotiate similar agreements with other countries is the provision for intellectual property rights protection. That is a policy that has been pushed very strongly by the President and by Dr. Graham and his staff in the White House and I would view that as one of the achievements here, that there is a new recognition of the significance and importance of protection of intellectual property rights.

But let me turn to Ambassador de Vos, and there may be others here who should comment as well.

Mr. DE VOS. I would agree that intellectual property rights is a very important element. I think that a second element is the concept of access. It is spelling out what the access is and recognizing the difference in the S&T component community in the United States and the structure in Japan.

I think that the fact that we were able to bridge the gap in the structure between our two countries and able to define how we give one another access to the S&T community, our laboratories where basic research is done. I think that, to me, at any rate, was the most satisfying aspect of it.

Mr. WALGREN. And then what about dissatisfying?

Mr. HALL. What did you ask for that you didn't get?

Mr. DE VOS. I think in principle, we got everything that we asked for. We may have wished to tie down specifics a little more in a little more detail in one area or another, but I think in all truthfulness, that we can say the American delegation got what it wanted. We're happy with it.

Mr. BERNTHAL. I was hoping that our chief negotiator would say that.

Let me ask Ms. Wince if she had a comment on that area as well.

Mr. HALL. What is it that wished you'd asked for that you didn't ask for that you could've gotten?

Ms. Wince, we'll recognize you.

Ms. WINCE. Dr. Bernthal and Ambassador de Vos have mentioned some of the key things, but I would also like to add that in my assessment, one of the accomplishments of the agreement—and this was worked out during the negotiations—was the recognition from the Japanese delegation, which, as you know, was comprised of official representatives of their science government establishment—that our science and technology cooperation is really not a zero sum game and that in order for it to continue as an integral, healthy part of our relationship, both sides have to come to the table as equal players and they have to put something on the table of equal value.

Clearly, the perception in the past that our system was open and our system was there to be exploited is one that the Japanese recognize they could no longer go forward with without having some repercussions from that.

Dr. Bernthal and Ambassador de Vos also participated in a parallel negotiation in the OECD which, as you may know, in May established a new framework for principles for international collaboration that is very similar to what we negotiated with the Japanese and that accomplishment also set forth in the international arena the idea that all advanced countries in science and technology have to come to the table as equal players and the concepts of equity and fairness and at the end of the day, there's some overall balance in contributions.

That is what the Japanese really accepted through these negotiations and in that sense, I think we have set a course for a very good relationship with them if we take advantage as a country of these opportunities that are offered through this agreement.

Mr. WALGREN. Thank you, Mr. Chairman.

I have one other thought that—I'd hate to take your time, but—

Mr. HALL. You're senior officer present, so I guess you can ask as many questions as you want.

Mr. WALGREN. Let me ask just one area here and that involves this development of the exchange of graduate students and the like, and it was indicated that the Japanese have committed or offered a certain amount of money and somebody said that the NSF has committed a certain amount of resources to this effort to expand the contact between our academic community and theirs.

Could I ask the NSF people exactly what our specific plans are in that area?

Mr. BERNTHAL. Certainly.

Mr. OWENS. Yes, sir.

We have, starting last February, begun to advertise with this kind of poster in the U.S. universities—

Mr. HALL. You're Mr. Owens and you'll give us that poster to go into the record, won't you?

Mr. OWENS. Yes, sir, I've got several here for you.

Mr. HALL. All right, sir. We just want one of them.

[See Appendix II for posters and program brochures:]

Mr. OWENS. We've sent out several thousand copies of these to be posted where we hope to find graduate students and postdocs and senior researchers who might take an interest. In fact, the response to this poster has netted us about 100 times the normal inquiries about long-term research visits in Japan, that is, around 1,000 people have been in touch with us through telemail or mail or telephone to ask about how they can get support for this type of research.

The poster was followed up by some other materials, and you may have heard that the Japanese have provided some resources as well. This brochure describes the 50 fellowships which the Ministry of Education has made available to U.S. researchers, 25 of which will be nominated by the NSF. This prescribes the procedures by which one should apply to the NSF for one of those 25 fellowships to be paid for by the Japanese Ministry of Education through the Japan Society for the Promotion of Science—

Mr. HALL. That's number two and that follows up the first one that you showed us. Are they different? They look the same to me.

Mr. OWENS. Yes, sir, they are different. The first is a poster; the second is a descriptive brochure with an application in the back, and this is for a Japanese-funded project.

We also put out a brochure which looks a lot like this one. It is for the Science and Technology Agency of Japan's fellowships. They have provided 35 fellowships to be administered by the NSF to select people and to coordinate the 35, five of which will be nominated by NIH, ten of which are open for nomination by U.S. Government agencies to send their own technical personnel and 20 that NSF will nominate from applicants outside the government.

We have another brochure which describes an agreement that we have with MITI's Agency for Industrial Science and Technology, which says that NSF has 30 slots in their 16 laboratories, 16 MITI laboratories, and how to get into them by applying to NSF for that purpose. This describes the procedures. These have not been brought back from the printers yet, I'm sorry to say, so I've got you the galley copies. There may be some typos there.

There is a fact sheet which goes out to everybody who asks for information about these long-term visits, which gives the basic information about what kind of support is available, about how much money you can get and for which purposes.

So we have been busy. There's one other brochure which I don't have with me here, but which describes language fellowships. We are offering, with NSF resources, fellowships for the American graduate students and postdocs, especially, in science and technology, science and engineering, for the study of the Japanese language.

Hopefully that will make them feel prepared to apply for one of these research fellowships later and to make their research stay in Japan more productive in terms of what they can learn.

Mr. WALGREN. What's the size of that program?

Mr. OWENS. The NSF funds, aside from the printing and the rest of the funds, the programmatic funds that we have available for what we call the Japan Initiative, is $800,000 this year.

Mr. WALGREN. That covers the language training?

Mr. OWENS. Yes, sir. We have had one round of the language training—the language fellowships. We had about 40 applicants. I believe we're going to make about 35 awards. The next one is this fall in November. We expect, because people only had six weeks to apply for the first round, that we'll get considerably more applications—

Mr. WALGREN. You're expecting to deliver to how many individuals?

Mr. OWENS. This year?

Mr. WALGREN. Well, per year.

Mr. OWENS. Individuals? I'm trying to separate individuals. We made a couple of awards which covered several individuals. We made an award to MIT to cover approximately 15 people who are taking a—

Mr. WALGREN. What's the general ballpark number of the individuals that will be trained in Japanese language under NSF resources? Under that $800,000?

Mr. OWENS. I would say up to 50 or 60 a year.

Mr. WALGREN. Okay.

Thank you, Mr. Chairman. If I could be permitted to submit some questions in writing, I would appreciate it.

[See Appendix I for additional questions and answers for the record:]

Mr. HALL. Thank you. And we do appreciate this fine panel and thank you for the—obviously, you know, if you got everything you went over there to get, it doesn't leave very much to be desired, and I see Mr. Ikeda, who is the Science Counselor of the Japanese Embassy, who has been a friend of this committee, and I understand he's leaving us to go back to Japan—that he's always welcome.

I'm a Member and an American taxpayer who believes that we ought to have further excursions into efforts for scientific cooperation with the Japanese because I think—I don't know of a more anticommunist government or anticommunist citizenry than they have and I think they're good people for us to cooperate with in the space program and certainly on the Super Collider.

I believe I find more genuine interest from their side of the table than I do in the European area for genuine input and not only to seek the technology we have, but their willingness and their ability to put up their share. I know that word "shared" costs is all through this. I think that with the investment Japan has in this country, that we really ought to be—ought to be working with them on scientific research projects, particularly like the Superconducting Super Collider that is of great interest to them. It just has to be. Their interest here, it seems to me, has the makings of a real and successful endeavor in science.

We thank you and Ms. Smith—I know of your long years of service over there—Ms. Wince and others that have cooperated with us and helped us.

We thank you for your time. We would like, Mr. Chairman, if it concurs with your good judgment, the right for other members to propel questions to you that they were not here able to—and able to answer.

With that, unless there is something further—I recognize the gentleman from California, Mr. Ron Packard, who is just back from Wake Island, from a presentation out there. We're not going to yield him any time to talk about Wake Island, but this is a Member who does great work for this committee.

Mr. PACKARD. I'm sorry, Mr. Chairman—both Mr. Chairmans—that I was not able to be here to attend your hearings. We're not all that busy around here, but they did schedule four hearings for me this morning, and I find myself trying to hop from one to another.

I appreciate the cooperation we do have between Japan and the United States and particularly the cooperative effort that we found together between the Science and Technology Committee in the Japanese Diet and also in our own Congress. Thank you.

Mr. HALL. With that, we are adjourned.

[Whereupon, at 12:20 p.m., the subcommittees were adjourned, to reconvene subject to the call of the Chair.]

APPENDIX I

ROBERT A. ROE, New Jersey, CHAIRMAN
GEORGE E. BROWN, JR., California
JAMES H. SCHEUER, New York
MARILYN LLOYD, Tennessee
DOUG WALGREN, Pennsylvania
DAN GLICKMAN, Kansas
HARLAN O. HOLLENBECK, Missouri
B. [illegible], Florida
RALPH M. HALL, Texas
DAVE McCURDY, Oklahoma
NORMAN Y. MINETA, California
BUDDY MACKAY, Florida
TIM VALENTINE, North Carolina
[illegible], New Jersey
RICK BOUCHER, Virginia
TERRY L. BRUCE, Illinois
RICHARD H. STALLINGS, Idaho
JAMES A. TRAFICANT, JR., Ohio
JIM CHAPMAN, Texas
LEE H. HAMILTON, Indiana
HENRY J. NOWAK, New York
CARL C. PERKINS, Kentucky
TOM McMILLEN, Maryland
DAVID PRICE, North Carolina
DAVID NAGLE, Iowa
JIMMY HAYES, Louisiana
DAVID E. SKAGGS, Colorado
PAUL E. KANJORSKI, Pennsylvania
GEORGE J. HOCHBRUECKNER, New York

MANUEL LUJAN, JR., New Mexico
ROBERT S. WALKER, Pennsylvania
F. JAMES SENSENBRENNER, JR., Wisconsin
CLAUDINE SCHNEIDER, Rhode Island
SHERWOOD L. BOEHLERT, New York
TOM LEWIS, Florida
DON RITTER, Pennsylvania
SID MORRISON, Washington
RON PACKARD, California
ROBERT C. SMITH, New Hampshire
PAUL B. HENRY, Michigan
[illegible] W. FAWELL, Illinois
D. FRENCH SLAUGHTER, JR., Virginia
LAMAR SMITH, Texas
ERNEST L. KONNYU, California
JACK BUECHNER, Missouri
JOEL HEFLEY, Colorado
CONSTANCE A. MORELLA, Maryland
CHRISTOPHER SHAYS, Connecticut

HAROLD P. HANSON
Executive Director
ROBERT C. KETCHAM
General Counsel
R. THOMAS WEIMER
Republican Staff Director

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
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WASHINGTON, DC 20515
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September 16, 1988

Dr. Frederick Bernthal, Assistant Secretary
Bureau of Oceans and International Environmental
and Scientific Affairs
U.S. Department of State
Washington, D.C. 20520

Dear Mr. Assistant Secretary:

On behalf of the Subcommittees on Science, Research, and Technology, and International Scientific Cooperation, we would like to thank you for your recent insightful testimony on the provisions of the U.S./Japan Cooperative Agreement in Science and Technology. Your testimony will be very useful to the Subcommittees as we weigh legislative options in this critical area of science policy.

Due to time constraints, we were unable to ask some questions we believe are important to fully understand this issue. We have enclosed these questions and request that you respond to them within two weeks. We have also included a copy of your transcribed testimony in order that you may correct, for the printed record, any transcriptional or typographical errors.

Once again, we would like to thank you for your excellent testimony on this important matter. If you have any questions, please contact Virginia Gold of the International Scientific Cooperation Subcommittee staff at (202) 226-3636, or Carol Pompliano of the Science, Research, and Technology Subcommittee staff at (202) 225-3433.

Sincerely,

Ralph M. Hall

RALPH M. HALL, Chairman
Subcommittee on International
Scientific Cooperation

Doug Walgren

DOUG WALGREN, Chairman
Subcommittee on Science,
Research, and Technology

QUESTIONS FOR DR. BERNTHAL

1. Your testimony refers to the principles covered by this agreement, including the "shared costs of collaboration, taking into account respective risks, benefits and management shares".

A. What risk are you referring to in this context? Is there a downside to this agreement that we should be aware of?

B. What do you mean by the shared costs of collaboration? Does this include Japanese participation in major scientific research projects currently contemplated in this country, such as the human genome project and the superconducting super collider?

2. Is it the policy of the U.S. Government that all future science and technology agreements must contain "intellectual property" language similar or identical to the language in this agreement? Will this be true only for "umbrella" agreements, or will it also be true for all agency-to-agency agreements? Will it be true for the re-negotiation of the U.S./China umbrella agreement which expires in 1989?

3. Appendix IV of the agreement leaves open the assignment of intellectual property rights from joint research projects.

A. What is your thinking on how these rights should be allocated in future projects? For example, should they be allocated based on percent of investment?

B. What provisions have been made in the event that agreement cannot be reached on individual cases? Are there any contingency steps provided in the agreement to achieve resolution in case of disagreement on the assignment of rights?

C. How do you overcome the potential problem that this arrangement will act as a disincentive to U.S. researchers working in Japan, who may not benefit from the work they are doing?

4. We have been advised that national security issues were resolved favorably during the negotiations over this agreement.

A. Could you be more specific about how sensitive technological information will be protected under this agreement? How does this agreement prevent a "Toshiba-type" incident - when sensitive technology was transferred to a third party that was not authorized to receive it?

B. What steps, if any, have been taken by the Japanese to implement the 1956 Inventions Secrecy Agreement, the pact recently approved by the Japanese government, which protects patent applications in Japan that are held by the U.S.?

5. Ambassador De Vos indicated that this is an umbrella agreement that applies to some 11 other programs involving U.S.-Japan cooperation on science and technology projects. Could you provide a list of these other programs, indicating the areas of research, the signatories, entry and expiration dates, and whether these programs are governed by the 1988 U.S.-Japan pact or the 1980 agreement?

6. You indicated that meetings of high-level and working-level groups assigned to implement this agreement have been scheduled for the fall. Could you provide a description of how you will "task" these groups to address the question of access to Japanese scientific and technical research as they prepare for these meetings?

DR. FREDERICK BERNTHAL RESPONSES TO ADDITIONAL QUESTIONS -- JULY 13, 1988

1. Your testimony refers to the principles covered by this agreement, including the "shared costs of collaboration, taking into account respective risks, benefits and management shares".

A. What risk are you referring to in this context? Is there a downside to this agreement that we should be aware of?

B. What do you mean by the shared costs of collaboration? Does this include Japanese participation in major scientific research projects currently contemplated in this country, such as the human genome project and the superconducting super collider?

A. The risks that we refer to are the normal risks that one takes in engaging in scientific and technological research. This includes the possibility of wasting investment in a research prototype that may prove useless. It also includes the normal risk to the environment when disposing of toxic wastes and the risk to life and limb when working with dangerous equipment. Though every scientist takes a great effort to minimize such risks, especially those to life and limb, we must recognize that we may never reduce the risk in these cases to zero. There is no risk-related downside to this agreement that does not exist in the normal conduct of scientific and technological research.

The reference to shared costs of collaboration is intended to include both large scale bilateral projects, and the numerous small scale bilateral projects that exist.

2. Is it the policy of the U.S. Government that all future science and technology agreements must contain "intellectual property" language similar or identical to the language in this agreement? Will this be true only for "umbrella" agreements, or will it also be true for all agency-to-agency agreements? Will it be true for the re-negotiation of the U.S./China umbrella agreement which expires in 1989?

A. Section 5171 of the Omnibus Trade Act of 1988 states, "Federally supported international science and technology agreements should be negotiated to ensure that ... intellectual property rights are properly protected...". It is U.S. Government policy to carry out this law for all umbrella agreements and agency-to-agency agreements, including the U.S. China agreement that expires in 1989. The Intellectual Property Rights language in the U.S. - Japan S&T Agreement is considered to be a good example of how intellectual property rights may be dealt with in our science and technology agreements. Where necessary to protect U.S. intellectual property rights, we would negotiate appropriate terms with other countries on an individual basis.

3. Appendix IV of the agreement leaves open the assignment of intellectual property rights from joint research projects.

A. What is your thinking on how these rights should be allocated in future projects? For example, should they be allocated based on percent of investment?

B. What provisions have been made in the event that agreement cannot be reached on individual cases? Are there any contingency steps provided in the agreement to acheive resolution in case of disagreement on the assignment of rights?

C. How do you overcome the potential problem that this arrangement will act as a disincentive to U.S. researchers working in Japan, who may not benefit from the work they are doing?

A. The arrangement of joint research projects with an agreed scope of work is distinct from the case of cooperation that only involves the visits of scientists. In that case, the host nation would own rights in the case where the host is "expected to make a major and substantial contribution to the programs of the cooperative activity". The provision of research facilities is considered to be a major and substantial contribution. There are a number of considerations that must be taken into account in assigning the distribution of intellectual property rights for joint research projects with an agreed scope of work. This includes the expertise of the participating scientists, the location of the research, the contribution of any unique or state-of-the-art equipment and the costs that each party bears.

Any distribution of intellectual property rights different from that detailed in the agreement must be "mutually agreed". Should any disagreement between the parties over intellectual property right distribution arise, Article IV (4) provides that it may be referred to the Joint Working Level Committee.

The distribution of intellectual property rights as spelled out in the agreement is not intended to be a disincentive to those researchers seeking to work abroad. There are many reasons that a researcher may choose to work abroad; the possibility of owning the rights to patents is not often a large consideration.

There are two categories of cooperation detailed in the agreement, those involving the visits of researchers and those involving joint projects with an agreed scope of work. In practice, junior researchers will generally work in the capacity of visiting researchers, and senior researchers will generally be involved in joint projects with an agreed scope of work. Thus, under the Agreement, junior researchers would generally lose the rights to created intellectual property, a situation that is also common U.S. practice. Senior researchers, working under "joint projects with an agreed scope of work" may negotiate a different distribution of rights under the U.S.-Japan Agreement.

Finally, far more researchers from Japan visit the U.S., than vice versa. As such, the U.S., as a nation, gains from the distribution of invention rights contained in the agreement.

4. We have been advised that national security issues were resolved favorably during the negotiations over this agreement.

A. Could you be more specific about how sensitive technological information will be protected under this agreement? How does this agreement prevent a "Toshiba-type" incident - when sensitive technology was transferred to a third party that was not authorized to receive it?

B. What steps, if any, have been taken by the Japanese to implement the 1956 Inventions Secrecy Agreement, the pact recently approved by the Japanese government, which protects patent applications in Japan that are held by the U.S.?

A. The agreement clearly states that each party will take steps to prevent the diversion to unauthorized destinations of export controlled information and equipment provided or produced in the course of cooperative activities. In addition, each nation's export control regimes will be enforced for cooperative activities under the agreement.

Since April, 1988, the Japanese patent office has accepted patents that are placed under U.S. secrecy orders for filing with the original priority date when the secrecy order is lifted, in full implementation of the 1956 agreement.

5. Ambassador de Vos indicated that this is an umbrella agreement that applies to some 11 other programs involving U.S.-Japan cooperation on science and technology projects. Could you provide a list of these other programs, indicating the areas of research, the signatories, entry and expiration dates and whether these programs are governed by the 1988 U.S.-Japan pact or the 1980 agreement?

A. The 1988 agreement supercedes the 1980 agreement. Therefore, there is no cooperation taking place under the 1980 agreement; it has all been subsumed under the 1988 agreement.

The list of activities under the agreement (entitled, "Preliminary Review of Cooperative Activities Between Japan and the United States") appears following question 6.

6. You indicated that meetings of high-level and working-level groups assigned to implement this agreement have been scheduled for the fall. Could you provide a description of how you will "task" these groups to address the question of access to Japanese scientific and technical research as they prepare for these meetings?

A. The Joint Working Level Committee meeting was held on September 14-15, and the Joint High Level Committee meeting was held on October 11-12. At the Joint Working Level Committee meeting, two task forces were established to address the issues of achieving more balanced access: one to discuss bringing a better balance of access between Japanese and U.S. scientific and technical literature, and one to discuss more balance in access between the U.S. and the Japanese R&D establishments. At the Joint High Level Committee, the membership and chairmanship of these task forces was confirmed. These task forces are charged with forwarding concrete suggestions to deal with the issues and will report their progress to the co-chairmen of the Joint Working Level Committees.

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U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUITE 2321 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-6371

September 16, 1988

Debra Wince
Assistant Director for International Affairs
Office of Science and Technology Policy
Executive Office Building
Washington, DC 20506

Dear Ms. Wince:

On behalf of the Subcommittees on Science, Research, and Technology, and International Scientific Cooperation, we would like to thank you for your recent insightful testimony on the provisions of the U.S./Japan Cooperative Agreement in Science and Technology. Your testimony will be very useful to the Subcommittees as we weigh legislative options in this critical area of science policy.

Due to time constraints, we were unable to ask a question we believe is important to fully understand this issue. The question is: What arrangements have been made for the cost of implementing the agreement, especially since it involves three committees?

We request that you respond to this question within two weeks. We have also included a copy of your transcribed testimony in order that you may correct, for the printed record, any transcriptional or typographical errors.

Once again, we would like to thank you for your excellent testimony on this important matter. If you have any questions, please contact Virginia Gold of the International Scientific Cooperation Subcommittee staff at (202) 226-3636, or Carol Pompliano of the Science, Research, and Technology Subcommittee staff at (202) 225-3433.

Sincerely,

Ralph M. Hall

RALPH M. HALL, Chairman
Subcommittee on International
Scientific Cooperation

Doug Walgren

DOUG WALGREN, Chairman
Subcommittee on Science,
Research, and Technology

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EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

September 30, 1988

Dear Messrs. Hall and Walgren:

This is in response to your letter of September 16, concerning the new Head-of-State Agreement on Cooperation in Science and Technology between the United States and Japan. Specifically, you have requested follow-up information on what arrangements the government has made for the cost of implementing the agreement.

Last July, the Economic Policy Council met to review and endorse the Administration's objectives and proposals for renegotiation of this Head-of-State Agreement. At that time, the Council directed that the cooperative research activities to be supported under the auspices of the new Agreement should be supported within each agency or department's budgetary resources and domestic R&D priorities. That directive is, of course, consistent with the Administration's overall approach to international scientific and technological cooperation; namely, that these activities must compete for existing budgetary resources within our mainstream domestic programs. This policy is particularly relevant to the conduct of our cooperative research activities with our advanced industrial partners, such as Japan.

At the same time, there may be special cases and research circumstances that warrant additional resources. In these instances, we have requested agencies and departments to request those additional costs through the normal budgetary process prior to setting forth these new proposals to the Government of Japan.

The three-tiered management structure for implementation of the Agreement is critical to its success and achieving our long-term objectives of balance, reciprocity and equitable benefits from US-Japan interactions in science and technology. As regards projected costs for implementing this management structure, the Administration is addressing projected costs through the normal budgetary cycle. It is anticipated that the representational costs associated with the annual ministerial-level meeting will be adjusted to reflect host and non-host responsibilities.

The joint high-level advisory committee will meet at least twice a year and will require preparatory meetings in respective capitols. Again, those projected costs are being considered and addressed through the Administration's budgetary planning process.

I thank you for the opportunity to testify on this watershed agreement which, for many years to come, will set the stage for our nation's scientific and technological relationship with Japan. Clearly, the concern and interest the Congress has taken in this Agreement contributed to the success of our negotiations, and we look forward to your continued interest and support as we move ahead with its implementation. Dr. Graham will be leading a senior-level delegation to Japan for the inaugural High-Level Committee meeting, where we will reach agreement with our Japanese colleagues on the specific steps and initiatives called for in the new Agreement.

On a final note, I enclose my corrections on the transcribed testimony per your guidance.

Sincerely,

Deborah L. Wince

Deborah L. Wince
Assistant Director

Enclosure

The Honorable Ralph M. Hall
Chairman, Subcommittee on
International Scientific
Cooperation

The Honorable Doug Walgren
Chairman, Subcommittee on
Science, Research and
Technology

Committee on Science, Space
and Technology
U.S. House of Representatives
Room 2321, Rayburn Building
Washington, D.C. 20515

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COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

SUITE 2321 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-6371

September 16, 1988

Maureen Smith
Deputy Assistant Secretary for Japan
U.S. Department of Commerce
Washington, DC 20230

Dear Ms. Smith:

On behalf of the Subcommittees on Science, Research, and Technology, and International Scientific Cooperation, we would like to thank you for your recent insightful testimony on the provisions of the U.S./Japan Cooperative Agreement in Science and Technology. Your testimony will be very useful to the Subcommittees as we weigh legislative options in this critical area of science policy.

Due to time constraints, we were unable to ask a question we believe is important to fully understand this issue. The questions is: How will the U.S./Japan agreement affect access by Japanese and American scientists to each other's publicly funded research projects, and particularly, those laboratories which are "off limits" to researchers from other countries?

We request that you respond to this question within two weeks. We have also included a copy of your transcribed testimony in order that you may correct, for the printed record, any transcriptional or typographical errors.

Once again, we would like to thank you for your excellent testimony on this important matter. If you have any questions, please contact Virginia Gold of the International Scientific Cooperation Subcommittee staff at (202) 226-3636, or Carol Pompliano of the Science, Research, and Technology Subcommittee staff at (202) 225-3433.

Sincerely,

Ralph M. Hall

RALPH M. HALL, Chairman
Subcommittee on International
Scientific Cooperation

Doug Walgren

DOUG WALGREN, Chairman
Subcommittee on Science,
Research, and Technology

RESPONSE TO ADDITIONAL QUESTION FROM MAUREEN SMITH, COMMERCE DEPARTMENT

Question: How will the U.S./Japan agreement affect access by Japanese and American scientists to each other's publicly funded research projects, and particularly, those laboratories which are "off limits" to researchers from other countries?

Answer: The Agreement calls for comparable access to major government-sponsored or government-supported programs and facilities for visiting researchers. It does not require access to these programs and facilities, but rather makes them eligible for access. In the case of Japan, many of these facilities have not been open to foreign access until now. The Agreement has thus expanded the universe of facilities that U.S. researchers can seek access to in Japan.

There may be facilities to which either side may wish to deny access. The Agreement does not compel each side to provide access to such facilities, but it does provide for a forum to discuss cases in which access has been denied. The key concept in the Agreement is comparable access. Although neither side is required to open up all its facilities to the other, each is obligated to provide a comparable degree of access -- with the ultimate objective of achieving overall balance in the relationship. Under this concept, there may still be instances in which each side may deny access to a specific program and/or facility, but Japan must increase tremendously the overall level of access it provides to its government-sponsored or government-supported facilities if it wishes to continue to enjoy its current degree of open access to such U.S. facilities.

APPENDIX II

AGREEMENT BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF JAPAN ON COOPERATION IN RESEARCH AND DEVELOPMENT IN SCIENCE AND TECHNOLOGY

The Government of the United States of America and the Government of Japan (hereinafter referred to as "the Parties");

Recalling the purposes of the Agreement on Cooperation in Research and Development in Science and Technology, which was signed by the President of the United States of America and the Prime Minister of Japan and entered into force on May 1, 1980 (hereinafter referred to as "the previous Agreement");

Recognizing that the two countries derive great benefits from their long and highly successful scientific and technological relationship;

Believing that the future prosperity and well-being of mankind depend upon the world's ability to generate new scientific knowledge and translate new discoveries into operational and applied technologies;

Affirming that the United States of America and Japan, sharing responsibilities in contributing to the world's future prosperity and well-being, should make further efforts to strengthen their respective national research and development policies;

Stressing the importance of sustaining long-term investments in basic research and creating dynamic research and development environments with a view to generating fundamental new knowledge, ensuring the protection of intellectual property rights so as to preserve the value of innovations derived from joint collaboration, providing for the smooth application of new technologies, and nurturing and expanding the next generation's human resources in science and technology;

Convinced that long-term mutually beneficial international science and technology collaboration is built upon long-lasting

partnerships between scientists of different nationalities, performance of joint research and development at each other's facilities, education and training of each other's promising students, and publication of joint research and development results in international journals;

Affirming their commitment to equitable contributions and to comparable access to each nation's research and development systems;

Determined to strengthen the overall science and technology relationship based on the principles of shared responsibilities and mutual and equitable contributions and benefits, commensurate with the two nations' respective scientific and technological strengths and resources;

Affirming their commitment to further enhance cooperation in science and technology; and

Desiring to set forth the policy framework for the conduct of the overall science and technology relationship between the Parties and to strengthen that relationship for peaceful purposes;

Have agreed as follows:

ARTICLE I

1. This Agreement establishes the policy framework for the overall science and technology relationship between the Parties, including collaboration in large-scale projects and major research and development initiatives. To strengthen that relationship, the Parties will conduct their science and technology relationship based on the principles of:

A. Shared responsibilities and mutual and equitable contributions and benefits, commensurate with the two nations' respective scientific and technological strengths and resources;

B. Comparable access to major government-sponsored or government-supported programs and facilities for visiting researchers, and comparable access to and exchange of information, in the field of scientific and technological research and development;

C. Adequate and effective protection and equitable distribution of intellectual property rights created in the course of collaboration and adequate and effective protection of intellectual property rights introduced in the course of collaboration;

D. Widest possible dissemination of information consistent with applicable national laws and regulations, including those related to security; and

E. Shared costs of collaboration taking into account their respective risks, benefits and management shares.

2. Under this policy framework, the Parties will discuss matters of importance in the field of science and technology, and policy issues related to the overall science and technology relationship between the two countries.

ARTICLE II

1. This Agreement also sets forth the principles and provisions for cooperative activities under this Agreement. Thereunder, the Parties will undertake cooperative activities for peaceful purposes in such areas of science and technology of national importance as may be mutually agreed.

2. The main areas and the forms of the cooperative activities under this Agreement are provided in Annex I, which is an integral part of this Agreement.

3. Implementing arrangements for the cooperative activities under this Agreement may be concluded between the Parties or their appropriate agencies to determine the specific terms of cooperation, in accordance with this Agreement.

4. A cooperative activity under this Agreement will be initiated by mutual agreement and should meet the following criteria:

A. Each party to that cooperative activity should possess strong complementary or counterbalancing research and development capabilities, adequate resource bases, and appropriate centers of excellence to engage in that cooperative activity;

B. The subject area of that cooperative activity should reflect an area of importance to both countries;

C. The results of that cooperative activity should be expected to contribute to an equitable distribution of benefits to each Party; and

D. That cooperative activity should have the potential to accelerate the rate of scientific and technological progress and to offer tangible contributions to the world's knowledge and technology base.

5. With regard to the cooperative activities under this Agreement, the Parties or their agencies, as appropriate, may allow the participation of researchers and organizations from all sectors of the research establishment, including universities, national laboratories, and the private sector.

6. The Parties or their agencies may include their respective major government-sponsored or government-supported research programs in the basic and applied research areas listed in Annex I as part of the cooperative activities under this Agreement when these programs and cooperative activities meet the criteria set forth in paragraph 4 of Article II.

7. This Article will be implemented subject to the applicable laws and regulations of each country.

ARTICLE III

1. This Agreement supersedes the previous Agreement. Implementing arrangements and cooperative activities undertaken under the previous Agreement are hereby incorporated under this Agreement, except that the Parties may agree that those arrangements and activities under the previous Agreement that do not meet the criteria set forth in paragraph 4 of Article II will be placed under other bilateral agreements.

2. This Agreement does not otherwise legally modify existing bilateral science and technology arrangements between the Parties or their agencies. However, the Parties or their appropriate agencies may amend such arrangements, as may be agreed, in accordance with their relevant amendment procedures, to make them consistent with the policy framework of this Agreement.

ARTICLE IV

With a view to strengthening the overall science and technology relationship on the basis of the principles set forth in paragraph 1 of Article I, the Parties will take those steps listed in Annex II, which is an integral part of this Agreement, and such other steps as may be mutually agreed.

ARTICLE V

1. The Parties will establish a Joint High Level Committee. The Joint High Level Committee will be co-chaired by the appropriate high-level representatives of both Parties. The U.S. chair will be the Science Advisor to the President. The Japanese chair will be the Minister for Foreign Affairs or his designee.

2. Meeting alternately in the United States of America and Japan, the Joint High Level Committee will serve as the annual forum for the Parties to review and discuss, under the policy framework of this Agreement, matters of importance in the field of science and technology and policy issues related to the overall science and technology relationship between the two countries, and the cooperative activities under this Agreement.

3. In this context, the Joint High Level Committee will submit an annual report to the Parties. The report will review

the operation of this Agreement, including an assessment of major developments with respect to the factors listed in Annex III, which is an integral part of this Agreement. The report will also set forth steps and new initiatives for the Parties to adopt for the next year, and, as necessary, policy recommendations on matters of importance to the overall science and technology relationship between the two countries.

4. The Parties will establish a Joint Working Level Committee at the technical management level to support the work of the Joint High Level Committee. For this purpose, specific functions of the Joint Working Level Committee are provided in Annex III and include a review of the overall science and technology relationship between the two countries under the policy framework of this Agreement and of the cooperative activities under this Agreement, and preparation of the annual report for the consideration of the Joint High Level Committee.

5. The Joint Working Level Committee will be chaired by the U.S. Department of State and the Ministry of Foreign Affairs of Japan. Each Party will determine its own representatives, including at least one technical management official from each agency with lead responsibility for a cooperative activity under this Agreement.

6. The Joint Working Level Committee will meet at least annually, alternately in the United States of America and

Japan. Meetings of the Joint Working Level Committee will be scheduled with particular attention to its role in supporting the Joint High Level Committee.

7. The Parties will establish a Joint High Level Advisory Panel to conduct a joint review of the overall science and technology relationship between the two countries and to advise the Joint High Level Committee on issues concerning that relationship. Specific functions of the Joint High Level Advisory Panel are provided in Annex III.

8. The Parties will each designate members of the Joint High Level Advisory Panel, which will comprise eminent leaders from the science and technology communities of both countries representing academia, industry, and other areas.

9. The Joint High Level Advisory Panel will meet on an annual basis and may also be convened at its own initiative or at the request of either chair of the Joint High Level Committee in consultation with the other chair.

ARTICLE VI

1. Scientific and technological information of a non-proprietary nature arising from the cooperative activities under this Agreement may be made available to the public by either Party through customary channels and in accordance with the normal procedures of the participating agencies.

2. The Parties will ensure:

A. the adequate and effective protection and equitable distribution of intellectual property rights and other rights of a proprietary nature as provided in Annex IV created in the course of the cooperative activities under this Agreement; and

B. the adequate and effective protection of intellectual property rights and other rights of a proprietary nature as provided in Annex IV introduced in the course of the cooperative activities under this Agreement,

in accordance with the laws and regulations of the respective countries and with international agreements to which the United States of America and Japan are or will be parties. The Parties will consult for this purpose as necessary.

3. Details and procedures for the protection and distribution of intellectual property rights and other rights of a proprietary nature as referred to in paragraph 2 above are set forth in Annex IV, which is an integral part of this Agreement. Annex IV is applicable to any cooperative activities under this Agreement, except as otherwise specifically agreed by the parties to the cooperative activities concerned, in individual implementing arrangements or otherwise. Implementing arrangements may also elaborate the provisions of Annex IV.

4. Issues that arise between the parties to a cooperative activity regarding the treatment of information, inventions, discoveries, writings, etc., under this Article or Annex IV will be settled, in principle, between those parties. Any such issues which cannot be resolved by those parties may be referred to the Joint Working Level Committee.

ARTICLE VII

1. Both Parties support the widest possible dissemination of the information or equipment created in the course of the cooperative activities under this Agreement, unless otherwise stipulated in this Article, Article VI, or Annex IV. In furtherance of the principle of maintaining an open basic research environment, both Parties confirm that no information or equipment classified for reasons of national defense will be utilized in the cooperative activities under this Agreement.

2. The transfer of export-controlled information or equipment between the countries in the course of the cooperative activities under this Agreement will be in accordance with the applicable national export control laws and regulations of each country. Each Party will take all necessary and appropriate measures, in accordance with applicable national laws and regulations, to prevent the diversion to unauthorized destinations of export-controlled information and equipment provided or produced in the course of the cooperative activities under this Agreement.

ARTICLE VIII

1. Implementation of this Agreement will be subject to the availability of appropriated funds and to the applicable laws and regulations of each country.

2. Costs of the cooperative activities under this Agreement will be borne by the Parties as mutually agreed, taking into account their respective risks, benefits and management shares.

ARTICLE IX

1. This Agreement will enter into force upon signature and remain in force for five years. Either Party may at any time give written notice to the other Party of its intention to terminate this Agreement, in which case this Agreement will terminate six months after such notice has been given.

2. This Agreement may be extended or amended by mutual agreement of the Parties.

ARTICLE X

The expiration of this Agreement will not affect the carrying out of any project or program undertaken under this Agreement and not fully executed at the time of the expiration of this Agreement.

DONE at Toronto, this twentieth day of June, 1989, in duplicate in the English and Japanese languages, both texts being equally authentic.

FOR THE GOVERNMENT OF THE UNITED STATES OF AMERICA:

Ronald Reagan

FOR THE GOVERNMENT OF JAPAN:

Noboru Takeshita

ANNEX I

MAIN AREAS AND FORMS OF THE COOPERATIVE ACTIVITIES

1. The following may be included as main areas for the cooperative activities under this Agreement:

A. Life sciences, including biotechnology;

B. Information science and technology;

C. Manufacturing technology;

D. Automation and process control;

E. Global geoscience and environment;

F. Joint database development; and

G. Advanced materials, including superconductors.

This list may be modified by mutual agreement.

2. Forms of the cooperative activities under this Agreement may include:

A. Conduct of joint projects and programs and other cooperative projects and programs;

B. Meetings of various forms, such as those of experts, to discuss and exchange information on scientific and technological aspects of general or specific subjects, and to identify research and development projects and programs which may be usefully undertaken on a cooperative basis;

C. Exchange of information on activities, policies, practices, laws and regulations concerning research and development;

D. Visits and exchanges of scientists, engineers or other experts on general or specific subjects; and

E. Other forms of cooperative activities as may be mutually agreed.

ANNEX II

STEPS TO STRENGTHEN THE OVERALL SCIENCE AND TECHNOLOGY RELATIONSHIP

In accordance with Article IV, the Parties will, subject to the applicable laws and regulations of each country, take the following steps to strengthen the overall science and technology relationship:

A. Continue their commitment to open research and development systems and international cooperation;

B. Continue to improve foreign language training programs for scientists and engineers to facilitate their communication and participation in research and development and daily life activities;

C. Provide comparable opportunities for scientists and engineers from the other country to engage in research and study in their respective facilities and major government-sponsored or government-supported research programs in basic and applied research areas;

D. Provide substantial numbers of competitive government fellowships in science and engineering for foreign nationals at their respective centers of excellence, with adequate allowances to cover accommodations and other needs;

E. Promote dissemination of information on the government fellowships and the opportunities for research and study referred to in subparagraphs C and D above;

F. Exert comparable efforts to encourage scientists and engineers to take advantage of the government fellowships and the opportunities for research and study referred to in subparagraphs C and D above;

G. Ensure that scientific and technical reports produced by government agencies or through major government-sponsored or government-supported research programs that are not published in readily available professional literature will be made available to researchers of the other country, through central sources such as National Technical Information Service and Japanese equivalents, as well as through expansion of the National Technical Information Service - Japan Information Center of Science and Technology program.

ANNEX III

THE JOINT HIGH LEVEL COMMITTTEE,
THE JOINT WORKING LEVEL COMMITTEE,
AND THE JOINT HIGH LEVEL ADVISORY PANEL

1. Pursuant to paragraph 1 of Article I and Article V, the Joint High Level Committee will assess major developments with respect to the following factors:

A. Developments and trends in each Party's policies for the promotion and support of science and technology, with particular reference to research and development activities performed at universities and national research institutions, and in major government-sponsored or government-supported research and development programs;

B. Efforts by each Party to stimulate an equitable flow of scientific and technical information between the two countries, and its concrete actions to enable new scientific and technical information generated by their respective science and technology establishments to come to the notice of the world scientific community through publication in open, readily available professional literature;

C. Efforts in each country to promote advanced educational and training opportunities in science and engineering at universities and national research institutions;

D. Each Party's efforts to establish and enhance world-class research and development facilities at universities and national research institutions in its country to generate new knowledge and generic technologies;

E. Flows of scientists and engineers between the two countries to educational and research facilities, and efforts in each country to stimulate and encourage equitable flows;

F. Efforts by each Party to provide comparable access to universities and national research institutions and to major government-sponsored or government-supported research and development programs; and

G. Support in each country for visits and exchanges of, and joint projects for, scientists and engineers involving all types of facilities and all levels of seniority and financial assistance.

2. The functions of the Joint Working Level Committee will include:

A. Reviewing and discussing the overall science and technology relationship between the two countries under the policy framework of this Agreement, including an assessment of the factors listed in paragraph 1 above;

B. Reviewing and discussing the overall progress of the cooperative activities under this Agreement and preparing recommendations, as necessary, for the consideration of the Joint High Level Committee to strengthen those activities;

C. Preparing, as necessary, policy recommendations on matters of importance to the overall science and technology relationship between the two countries for submission to the Joint High Level Committee for its consideration;

D. Preparing and submitting to the Joint High Level Committee for its consideration steps and new initiatives for the next year, including areas of cooperation under paragraph 1 of Annex I;

E. Preparing an annual report for the consideration of the Joint High Level Committee incorporating the results of the functions enumerated above;

F. Informing the Joint High Level Committee of the status of other bilateral science and technology arrangements in relation to the policy framework of this Agreement;

G. Dealing with technical and management issues related to the cooperative activities under this Agreement, except that large-scale projects and major research and development initiatives with separate management mechanisms

will not fall under the technical and management review of the Joint Working Level Committee;

H. Establishing, as necessary, a task force to identify and monitor scientists' and engineers' access to and participation in major government-sponsored or government-supported research and development programs and to obtain annual statistical data on Japanese researchers' participation in the U.S. research and development system and U.S. researchers' participation in the Japanese research and development system; and

I. Establishing a task force to develop recommendations on improving access to scientific and technical information and to serve as a forum where scientific and technical information organizations may raise and resolve issues relating to open access to the results of scientific and technological research.

3. The functions of the Joint High Level Advisory Panel will include:

A. Identifying issues of importance to the overall science and technology relationship between the two countries and making appropriate recommendations to the Joint High Level Committee;

B. Reviewing major advances in research and development in the two countries and recommending to the Joint High Level Committee priority areas for bilateral collaboration, under either private or governmental auspices;

C. Reviewing mechanisms of science and technology cooperation for their effectiveness in strengthening the overall science and technology relationship, and making appropriate recommendations to the Joint High Level Committee; and

D. Identifying and recommending approaches to enhance comparable access to research and training opportunities, facilities, expertise, data, and results, taking into consideration each nation's research and development system, institutions, and policies.

ANNEX IV

PROTECTION AND DISTRIBUTION OF INTELLECTUAL PROPERTY RIGHTS AND OTHER RIGHTS OF A PROPRIETARY NATURE

1. Business-Confidential Information

A. For the purpose of this Annex, "business-confidential information" means any know-how, technical data, or technical, commercial, or financial information that meets all of the following conditions:

(i) It is of a type customarily held in confidence for commercial reasons;

(ii) It is not generally known or publicly available from other sources;

(iii) It has not been previously made available by the owner to others without an obligation concerning its confidentiality; and

(iv) It is not already in the possession of the recipient without an obligation concerning its confidentiality.

B. Any business-confidential information will be furnished or, when created in the course of the cooperative activities under this Agreement, transferred only by mutual written agreement of the parties to the cooperative activity concerned and will be

given full protection in accordance with the laws and regulations of their respective countries.

C. Any business-confidential information will be appropriately identified before it is furnished in the course of the cooperative activities under this Agreement or, unless otherwise provided in the implementing arrangements, immediately upon being created. Responsibility for identifying such information will fall on the party which furnishes it or asserts that it is to be protected. Unidentified information will be assumed not to be information to be protected, except that a party to the cooperative activity may notify the other party in writing, within a reasonable period of time after furnishing or transferring such information, that such information is business-confidential information under the laws and regulations of its country. Such information will thereafter be protected in accordance with subparagraph B above.

2. Ownership of Intellectual Property Rights

Between each Party and nationals of its country, the ownership of intellectual property rights will be determined in accordance with its national laws, regulations and practices.

3. Inventions

A. For the purpose of this Annex, the "Invention" means any invention made in the course of the cooperative activities under this Agreement which is or may be patentable or otherwise protectable under the laws of the United States of America, Japan or any third country.

B. As to an Invention, the parties to the cooperative activity concerned will take appropriate steps, in accordance with the national laws and regulations of the respective countries, with a view to realizing the following:

(i) If an Invention is made as a result of a cooperative activity under this Agreement that involves only the transfer or exchange of information between the parties, such as by joint meetings, seminars, or the exchange of technical reports or papers, unless otherwise provided in an applicable implementing arrangement:

(a) the party whose personnel make the Invention (hereinafter referred to as "the Inventing Party") or the personnel who make the Invention (hereinafter referred to as "the Inventor") have the right to obtain all rights and interests in the Invention in all countries, and

(b) in any country where the Inventing Party or the Inventor decides not to obtain such rights and interests, the other party has the right to do so.

(ii) If the Invention is made by an Inventor of a party ("the Assigning Party") while assigned to another party ("the Receiving Party") in the course of programs of a cooperative activity that involve only the visit or exchange of scientists and engineers, and:

(a) in the case where the Receiving Party is expected to make a major and substantial contribution to the programs of the cooperative activity:

i. the Receiving Party has the right to obtain all rights and interests in the Invention in all countries, and

ii. in any country where the Receiving Party decides not to obtain such rights and interests, the Assigning Party or the Inventor has the right to do so;

(b) in the case where the provision in subparagraph (a) above is not satisfied:

i. the Receiving Party has the right to obtain all rights and interests in the Invention in its own country and in third countries,

ii. the Assigning Party or the Inventor has the right to obtain all rights and interests in the Invention in its own country, and

iii. in any country where the Receiving Party decides not to obtain such rights and interests, the Assigning Party or the Inventor has the right to do so.

(iii) Specific arrangements involving other forms of the cooperative activities, such as joint research projects with an agreed research work scope, will provide for the mutually agreed upon disposition, on an equitable basis, of rights to the Invention made as a result of such activities.

(iv) The Inventing Party will disclose promptly the Invention to the other party and furnish any documentation or information necessary to enable the other party to establish rights to which it may be entitled. The Inventing Party may ask the other party in writing to delay publication or public disclosure of such documentation or information for the purpose of protecting its rights or the rights of the Inventor related to the Invention. Unless

otherwise agreed in writing, such restrictions will not exceed a period of six months from the date of communication of such documentation or information

4. Copyrights

Disposition of rights to copyright-protected works created in the course of the cooperative activities under this Agreement will be determined in the relevant implementing arrangements. The parties to the cooperative activities concerned will take appropriate steps to secure copyright to works created in the course of the cooperative activities under this Agreement in accordance with the national laws and regulations of the respective countries.

5. Rights to Semiconductor Chip Layout Designs

Disposition of rights to semiconductor chip layout designs created in the course of the cooperative activities under this Agreement will be determined in the relevant implementing arrangements. The parties to the cooperative activities concerned will take appropriate steps to secure rights to semiconductor chip layout designs created in the course of the cooperative activities under this Agreement in accordance with the national laws and regulations of the respective countries.

6. Other Forms of Intellectual Property

For those other forms of intellectual property created in the course of the cooperative activities under this Agreement which are protected under the laws of either country, disposition of rights will be determined on an equitable basis, in accordance with the laws and regulations of the respective countries.

7. Cooperation

Each party to the cooperative activity concerned will take all necessary and appropriate steps, in accordance with the laws and regulations of its country, to provide for the cooperation of its authors and inventors which are required to carry out the provisions of this Annex. Each party to the cooperative activity concerned assumes the sole responsibility for any award or compensation that may be due its personnel in accordance with the laws and regulations of its country, provided, however, that this Annex creates no entitlement to any such award or compensation.

THE SECRETARY OF STATE

WASHINGTON

June 20, 1988

Dear Mr. Minister:

I wish to confirm the following understanding shared by our two Governments regarding paragraph 1 of Article VII of the Agreement between the Government of the United States of America and the Government of Japan on Cooperation in Research and Development in Science and Technology:

1. In the event that information or equipment that may be classified for reasons of national defense is unexpectedly created in the course of cooperative activities under the aforementioned Agreement, it may, insofar as permitted by applicable laws and regulations, be protected from unauthorized disclosure.

2. Neither Government is obligated to modify existing laws and regulations or to create new laws and regulations.

Sincerely yours,

George P. Shultz

George P. Shultz

His Excellency
Sousuke Uno,
Minister for Foreign Affairs,
Tokyo.

THE SECRETARY OF STATE

WASHINGTON

June 20, 1988

Dear Mr. Minister:

I welcome and appreciate the Government of Japan's commitment that, pursuant to the Agreement between the Government of the United States of America and the Government of Japan on Cooperation in Research and Development in Science and Technology and the principles of equitable contributions and comparable access to each Government's research and development systems stated therein, the Government of Japan will take steps to identify and increase substantially opportunities for American scientists and engineers to engage in research and study in Japan, including in the areas of cooperation listed in Annex I of that Agreement.

I hereby confirm that the United States Government will strongly encourage and support American scientists and engineers to take advantage of such increased opportunities.

Sincerely yours,

George P. Shultz

His Excellency
Sousuke Uno,
Minister for Foreign Affairs,
Tokyo.

MINISTRY OF FOREIGN AFFAIRS
TOKYO, JAPAN

June 20, 1988

Dear Mr. Secretary:

I wish to confirm the following understanding shared by our two Governments regarding paragraph 1 of Article VII of the Agreement between the Government of Japan and the Government of the United States of America on Cooperation in Research and Development in Science and Technology:

1. In the event that information or equipment that may be classified for reasons of national defense is unexpectedly created in the course of cooperative activities under the aforementioned Agreement, it may, insofar as permitted by applicable laws and regulations, be protected from unauthorized disclosure.

2. Neither Government is obligated to modify existing laws and regulations or to create new laws and regulations.

Sincerely,

Sousuke Uno

Sousuke Uno
Minister for Foreign Affairs
of Japan

The Honorable
George P. Shultz
Secretary of State
of the United States of America

MINISTRY OF FOREIGN AFFAIRS
TOKYO, JAPAN

June 20, 1988

Dear Mr. Secretary:

Pursuant to the Agreement between the Government of Japan and the Government of the United States of America on Cooperation in Research and Development in Science and Technology and the principles of equitable contributions and comparable access to each Government's research and development systems stated therein, I hereby confirm that the Government of Japan will take steps to identify and increase substantially opportunities for American scientists and engineers to engage in research and study in Japan, including in the areas of cooperation listed in Annex I of that Agreement.

I anticipate that the United States Government will also encourage and support American scientists and engineers to take advantage of such increased opportunities.

Sincerely,

Sousuke Uno

Sousuke Uno
Minister for Foreign Affairs
of Japan

The Honorable
George P. Shultz
Secretary of State
of the United States of America

THE WHITE HOUSE

Office of the Press Secretary
(Toronto, Canada)

For Immediate Release June 20, 1988

REMARKS BY THE PRESIDENT
AND PRIME MINISTER TAKESHITA
AT THE SCIENCE AND TECHNOLOGY SIGNING CEREMONY

Royal York Hotel
Toronto, Canada

4:43 P.M. EDT

THE PRESIDENT: Prime Minister Takeshita and I have just signed a new Agreement on Cooperation in Research and Development in Science and Technology. This agreement provides for joint initiatives to strengthen our bilateral science and technology relationship. It's based on the principles of mutual and equitable contributions and benefits. In it, we set forth the policy framework for this overall relationship. Our hope is to strengthen the relationship for peaceful purposes.

The United States and Japan have a long history of scientific and technological cooperation. This cooperation has benefited both our nations. It has included joint government-to-government research projects, exchanges of students and scholars, and private industry research. When we look to the future, it is clear that science and technology will grow even more important to our mutual well-being.

With this in mind, and recognizing the great contributions both of our scientific establishments have to offer to world prosperity, we seek to enhance cooperation in a number of research areas of national importance. Under this agreement we will establish a joint high-level committee to meet at least annually for the purpose of reviewing matters of importance in the field of science and technology. This joint committee will also review and discuss policy issues related to the overall science and technology relationship between our two countries and the cooperative activities under this agreement. I might add that this new agreement is already bearing fruit and I thank the Prime Minister for his efforts in this regard.

Thank you and God bless you. (Applause.)

PRIME MINISTER TAKESHITA: It is my deep pleasure to join you, Mr. President, in signing this Japan-U.S. Science and Technology Cooperation Agreement. This agreement lifts our sights to the 1990s and beyond, establishing a practical framework for cooperation between Japan and the United States -- two leading nations on the cutting edge of the pursuit of new knowledge. I wish to stress that our collaboration under this agreement is not exclusive. It is open to be shared by all the world.

Indeed, I cherish the hope that our joint endeavors, particularly on the frontiers of advanced science and technology, will bear fruit -- bear rich fruit and will contribute significantly, not only to the well-being of our two people, but also to peaceful progress and prosperity throughout the world. I offer my sincere appreciation to yc Mr. President, and I extend my warm thanks to all those in both nations whose vision and efforts have shaped this important understanding.

Thank you. (Applause.)

END 4:49 P.M. EDT

THE WHITE HOUSE

Office of the Press Secretary
(Toronto, Canada)

For Immediate Release June 20, 1988

FACT SHEET

U.S. - JAPAN AGREEMENT
ON COOPERATION IN SCIENCE AND TECHNOLOGY

The new agreement incorporates provisions and initiatives to establish a more balanced and reciprocal partnership in science and technology. Specifically, the new agreement:

-- Sets forth broad principles under which the governments of the United States and Japan will conduct their future science and technology relationship;

-- Establishes cooperation in science and technology areas of national importance in which both countries have complementary capabilities and from which both countries will obtain equitable benefits (among these areas of research are advanced materials, including superconductors, life sciences, information science, manufacturing technology, automation and process control, global geoscience and environment, and joint database development);

-- Calls for both governments to provide comparable access to their government-sponsored or supported research facilities and activities, as well as to scientific and technical literature;

-- Creates a broad management structure that will oversee the overall science and technology relationship and generate initiatives and policy recommendations to strengthen that relationship;

-- Sets forth provisions for the adequate protection of intellectual property and the distribution of intellectual property rights arising from the collaborative activities under the agreement; and

-- Details the shared security obligations of the United States and Japan in the area of collaborative science and technology information. The agreement states that both countries will support the widest possible dissemination of information, subject to export controls, classification procedures, and intellectual property rights protection.

The new agreement establishes a Joint High Level Committee to meet annually to review matters of importance in the field of science and technology and policy issues related to the overall science and technology relationship between the two countries.

The new five-year accord supersedes the Science and Technology Agreement that was signed by President Carter and Prime Minister Ohira in 1980.

# # #

U.S.–Japan Science Pact Signed

The United States and Japan have formally agreed to a framework on cooperation in science and technology, pledging to provide "comparable access" to each other's government-sponsored research and to make "equitable contributions" to the relationship. The agreement caps year-long negotiations between the two countries in which the United States has pressed the Japanese to reciprocate American openness in access to research and shoulder a greater share of basic research funding (*Science*, 1 January, p. 13; 31 July 1987, p. 476.).

The pact was signed by President Reagan and Japanese Prime Minister Noboru Takeshita on 20 June during the economic summit in Toronto. It replaces a joint agreement signed in 1980. The new agreement substantially expands cooperation into several broad new areas, including superconductivity, sets up three committees to implement the agreement, and lays down rules for handling intellectual property rights and potentially sensitive military information that might arise from joint research.

But it is most notable for the principles agreed to on the issues of access to government-sponsored research and funding of fundamental research, which, during the past couple of years, have become an increasingly sore point among American science leaders. While American government and university laboratories have been open to Japanese researchers, Americans have felt blocked from Japanese labs.

Solutions to the problem have been complicated by the fact that the structures of American and Japanese basic research are so different. In the United States, about half of all research and development is funded by the government while the Japanese government supports only about 20%. Japanese industry funds 80% of the country's total R&D.

With that in mind, the new agreement is limited in its impact because it applies only to government-sponsored research, not corporate. Nevertheless, said White House science adviser William Graham in an interview with *Science*, "The agreement is trailblazing. It will do a great deal to redress an imbalance of the past. The real accomplishment here is that we did bridge a gap between our structural differences. The agreement is quite different from the previous agreement in that it's a stronger statement of imperatives of cooperation."

Negotiators very carefully chose the word "comparable" to describe the kind of access the two countries are committed to providing. The word is meant to take into account the countries' different research structures and to convey their intention to provide equivalent access in a qualitative sense, rather than numerical. Under this concept, if a Japanese scientist conducts research at the National Institutes of Health, the United States might request access to a laboratory in another field. The word comparable is meant to avoid the idea that there should be a strict one-to-one exchange of visiting Japanese and American scientists.

Under the new agreement, the two countries plan to conduct joint research in the life sciences, including biotechnology, information science, manufacturing, automation, global geosciences and environment, joint database development, and advanced materials.

The inclusion of superconductivity as a topic of joint research is noteworthy, given that Graham barred foreign companies from a national conference on superconductivity held almost a year ago. Graham said, "This agreement deals with research and scientific aspects of superconductivity, not commercialization" as the conference did.

The two governments also settled their differences on language acknowledging the need to protect information related to national security interests. Japan had vigorously objected to an American proposal to refer to military research in the pact because the agreement covers only basic research for peaceful purposes. To the Japanese, it was important to maintain a clear separation between military and civilian research. In a letter issued with the agreement, both countries agreed that if militarily sensitive information "is unexpectedly created" by joint research, it may "be protected from unauthorized disclosure."

Kaname Ikeda, science counselor at the Japanese embassy in Washington, D.C., said in an interview, "This is a well-designed agreement. Now we need to have a good environment so we can implement it successfully and in a productive manner."

■ MARJORIE SUN

SCIENCE 7/1/88

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National Science Foundation
Division of International Programs

Japan Initiative
FACT SHEET

Despite Japan's technical prowess, relatively few American scientists and engineers spend time in that country during their graduate education or conducting scientific research. As a result, professional relationships between American and Japanese scientists and institutions lack the breadth and depth of those with scientists from European countries, so results from Japanese laboratories often take longer to diffuse into American laboratories than do those from European counterparts.

In an effort to increase the number of U.S. investigators conducting research in Japan, the National Science Foundation (NSF) is implementing a "Japan Initiative," beginning in 1988. The goals of the Initiative are:

—to increase the number of scientists and engineers in the U.S. who can operate with ease in Japan's research community and follow developments in the Japanese science and engineering literature,

—to increase American recognition of the potential benefits of cooperative research with Japanese institutions, and

—to build relations between the U.S. and Japanese research communities.

NSF will accomplish these goals in the following ways:

1. Provide funds for scientists and engineers to undertake long-term research stays (six months or more) in Japan.

Recipients of long-term research grants will receive a monthly stipend, roundtrip airfare (for themselves and up to three accompanying dependents) to Japan, and a modest housing allowance. See the research visits fact sheet (NSF 88-51) for details.

2. Provide fellowships for scientists and engineers at the graduate, post-graduate, and senior levels to study the Japanese language; help develop better curricula and course materials for teaching Japanese to such students.

NSF will support Japanese language study aimed at facilitating a researcher's stay in Japan or at developing the ability to read Japanese technical literature. This program supports only language study, not travel to Japan; the program announcement (NSF 88-10) gives further details. Application deadlines are May 15, October 15, and December 15. NSF will also accept proposals to develop improved course materials for teaching technical Japanese.

3. Identify and secure opportunities for American researchers at Japanese research institutes, including corporate facilities.

NSF will assist U.S. researchers in arranging long-term stays at Japanese laboratories. The NSF office in Tokyo will continue to elicit commitments from Japanese companies to accept qualified American researchers. The office can also contact Japanese labs, both national and private, to facilitate replies to applications from U.S. scientists and engineers.

4. Fund survey teams to visit Japan, to report on the state of the art in specific disciplines, with an emphasis on opportunities offered in Japan for U.S. researchers to advance their work.

NSF's International Information and Analysis section (INT/I&A) accepts proposals to collect information on the state of research abroad on selected topics. See I&A's separate brochure (NSF 87-67) for details.

NSF hopes to send ten to fifteen researchers in 1988, and plans gradually to expand the long-term fellowship program. Language fellowships could number 40 or 50 in the first year and increase to twice that number in subsequent years.

On its own initiative, the Japanese government offers other support for U.S. researchers in Japan. Taken together, those programs will significantly expand U.S. researchers' opportunities to work with their Japanese colleagues in Japan.

In January 1988, Prime Minister Takeshita announced that the government of Japan would provide $4.8 million to the National Science Foundation for the formation of a Japan-U.S. Science Fellowship Fund to increase the number of American researchers going to Japan. The U.S. investigators select the Japanese laboratories, whether government, private, or industrial, at which they wish to conduct research.

The **Japan Society for the Promotion of Science (JSPS)** annually offers **50 postdoctoral fellowships** for U.S. scientists and engineers to conduct research at Japanese university laboratories or at other institutions affiliated with the Japanese Ministry of Education, Science, and Culture. Twenty-five candidates will be nominated by NSF, and five by NIH; 20 more will be directly invited by Japanese professors. Those research visits will normally last one year; see the program announcement (NSF 88-37) for details.

A parallel program, sponsored by the Japanese **Science and Technology Agency (STA)**, will support approximately **50 young U.S. researchers** yearly at any Japanese national laboratory except those affiliated with universities, as well as at Japanese public corporations and certain non-profit research foundations. Ask for NSF 88-52.

Moreover, beginning in 1988, NSF and the **Agency of Industrial Science and Technology (AIST)**, of the Ministry of International Trade and Industry (MITI), will implement a program whereby AIST will provide access to its research institutes each year for up to **thirty U.S. scientists and engineers.** The visits will normally last from six months to one year. See NSF 88-22.

For further information, including application forms, contact NSF at the following address:

Japan Initiative, Room 1208
Division of International Programs
National Science Foundation
Washington, D.C. 20550
Tel: (202) 357-9558
Electronic mail: cwallace@note.nsf.gov

Who May Apply

The Foundation welcomes applications to the various parts of the Japan Initiative from all qualified scientists and engineers, and strongly encourages women, minorities, and persons with disabilities to compete fully in them. NSF provides funding for special assistance or equipment to enable persons with disabilities to accept NSF research awards. Ask for publication 84-62. NSF has TDD (Telephonic Device for the Deaf) capability to enable individuals with hearing impairments to communicate with the Division of Personnel and Management for information about NSF programs. The telephone number is (202) 357-7492.

In accordance with Federal statutes and regulations and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity receiving financial assistance from the National Science Foundation.

The Foundation provides awards for research in the sciences and engineering. The awardee is wholly responsible for the conduct of such research and preparation of the results for publication. The Foundation, therefore, does not assume responsibility for such findings or their interpretation.

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NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

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Japan Society for the Promotion of Science (JSPS) Postdoctoral Awards for United States Researchers

NATIONAL SCIENCE FOUNDATION
Washington, D.C. 20550

Application deadline: November 1

Japan Society for the Promotion of Science (JSPS) Postdoctoral Awards for United States Researchers

Introduction and Nature of Support

The National Science Foundation's (NSF) Division of International Programs nominates U.S. scientists and engineers for one-year research awards administered by the Japan Society for the Promotion of Science (JSPS). The awards are designed to provide approximately 25 young U.S. researchers the opportunity to collaborate with Japanese colleagues at academic research facilities in Japan. The awards provide a monthly stipend while in Japan and pay for travel, housing, medical insurance, and research-related expenses.

Each applicant should begin correspondence with his or her prospective Japanese host well before submitting a proposal. If applicants encounter difficulty in making initial contacts, NSF can assist. Applications to NSF are accepted in October. Researchers not meeting criterion 1 below may be eligible to compete for support from other sources. If so, information on revelant programs will be sent upon inquiry. Potential applicants should be aware that NSF also offers Japanese-language fellowships (NSF 88-10).

Qualifications and Award Selection Criteria

Applicants must:

1) Be U.S. citizens or nationals not more than 35 years of age;

2) Hold a doctorate in the natural sciences, the social sciences, or engineering. In exceptional cases, candidates without the doctoral degree will be considered if they can demonstrate equivalent professional experience;

3) Demonstrate with appropriate documentation the ability to pursue independent research; and

4) Identify a Japanese host scientist willing to collaborate on the research project.

Proposals will be evaluated by review panels on the basis of:

- The scientific merit of the proposed research, including (a) its potential for generating new knowledge and improved concepts, and (b) its approach and methodology,
- The adequacy of the applicant's educational background and research experience to undertake the proposed research, and
- The expected outcome of the proposed research and its potential for furthering collaboration in science or engineering between the applicant and one or more Japanese investigators.

Since Program funds are limited, consideration will also be given, in establishing priorities for proposals of substantially equal merit, to balance among disciplines or research topics and to geographic distribution.

Host Research Institutions

Awardees will conduct research at public or private Japanese universities, National Inter-university Research Institutes, or other research facilities affiliated with the Japanese Ministry of Education, Science, and Culture (*Monbusho*).

Commencement and Duration of Research Awards

In March of each year, JSPS will inform successful applicants by letter of their selection. Awardees may begin their research visits as early as the next month (April), but must arrive in Japan by March 31 of the following year, in accordance with the schedule arranged with the Japanese host researcher.

Research Awards are provided for one year. Applications for extension for up to twelve months will be considered if necessary for completion of the planned research. Such application must be made to JSPS at least three months before the end of one's award.

Support

JSPS will provide Awardees the following support:

1. Roundtrip economy-class airfare and actual expenses from Japanese port of entry to the host institution for the Awardee only;
2. Settling-in allowance of ¥200,000;
3. Monthly stipend of ¥270,000;
4. Monthly housing allowance not to exceed ¥100,000;
5. Monthly family allowance of ¥50,000, if accompanied by dependents;
6. Medical and accident insurance coverage for the Awardee only; and
7. Language-training allowance not to exceed ¥500,000 total.

Applicants with dependents please note: The JSPS postdoctoral award does not provide any allowances for dependents' travel, schooling, or housing. NSF will consider applications for supplementary support in those categories. Please use NSF budget form 1030 and attach a page of explanation.

After arrival in Japan, Awardees, in collaboration with their Japanese host, may apply to the Ministry of Education, Science, and Culture for a grant to cover research costs such as equipment, materials, and supplies. One such application, requesting support up to ¥1,200,000, may be filed during the Awardee's stay in Japan.

Final Reports

The visiting researcher is required to submit a final technical report and a summary description of his or her work in Japan on NSF Form 98A. In addition, the Program requests that each researcher also submit on NSF Form 1244 answers to some additional questions on his or her host institution in Japan.

Application Procedures

Applications to NSF will be accepted during October of each year. The application and all supporting materials must be received by November 1.

Formal applications must include:

1) Five copies of the following:
   a) The attached JSPS application
   b) Research plan in Japan (limit text to two typewritten pages)
   c) Biography/*curriculum vitae*, including publications
2) NSF Form 1225: Information about Principal Investigators
3) Letter of acceptance from one's proposed Japanese host researcher
4) *Curriculum vitae* of the proposed host researcher
5) Three letters of reference, from one's research supervisor and two professional colleagues in the U.S.

Applicants should submit their application packages to:

Proposal Processing Unit, Room 223
Japan Initiative
National Science Foundation
Washington, D.C. 20550

Please have the letters of reference sent to the address below.

Inquiries

For inquiries concerning these research opportunities, contact:

JSPS Postdoctoral Awards, Room 1208
Division of International Programs
National Science Foundation
Washington, D.C. 20550

Telephone: (202) 357-9558
Electronic mail: cwallace@note.nsf.gov

Note: Parallel JSPS postdoctoral research fellowships are available in the biomedical and clinical sciences through the National Institutes of Health (NIH). Applications to NIH are due by May 10 each year. Information may be obtained from the following address:

Dr. Bettie Graham or Dr. Lynn Amende
International Research and Awards Branch
Fogarty International Center
National Institutes of Health
Bethesda, Maryland 20892

Telephone: (301) 496-6688

Invitations from Japanese Host Researchers

In addition to the mechanism just described wherein NSF and NIH accept and process applications from U.S. investigators on behalf of JSPS, JSPS also accepts applications from Japanese academic investigators who wish to host a foreign researcher. Approximately 20 U.S. researchers per year will be selected in that manner, without NSF or NIH involvement, through a JSPS review process. U.S. scientists interested in applying for a fellowship through that mechanism should contact their Japanese colleagues directly for additional information.

Who May Apply

The Foundation welcomes applications for this program on behalf of all qualified scientists and engineers, and strongly encourages women, minorities, and persons with disabilities to compete fully in this program. NSF provides funding for special assistance or equipment to enable persons with disabilities to accept NSF research awards. Ask for publication 84-62. NSF has TDD (Telephonic Device for the Deaf) capability to enable individuals with hearing impairments to communicate with the Division of Personnel and Management for information about NSF programs. The telephone number is (202) 357-7492.

In accordance with Federal statutes and regulations and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity receiving financial assistance from the National Science Foundation.

The Foundation provides awards for research in the sciences and engineering. The awardee is wholly responsible for the conduct of such research and preparation of the results for publication. The Foundation, therefore, does not assume responsibility for such findings or their interpretation.

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Fact Sheet

Support for Research Visits to Japan Through the National Science Foundation

Introduction and Nature of Support

The National Science Foundation (NSF) invites U.S. researchers to consider long-term research stays in Japan. U.S. scientists and engineers—whether from academia, government, or industry—will be supported for visits to research or development laboratories in Japan for six to 18 months.

Both established researchers and recent doctoral degree recipients, in any field of science or engineering, are encouraged to apply for long-term visits. Each applicant should begin correspondence with his or her prospective Japanese host well before submitting a proposal. If applicants encounter difficulty in making contacts, NSF can assist. NSF provides salary supplementation, travel expenses, and allowances for housing and dependents' schooling, as outlined below. The awards are designed to cover additional costs which the researcher incurs because his or her research must be conducted in Japan.

Other sources of support, including Japanese government funds, are also available through NSF for visits to Japan. Taken together, those programs will support a substantial number of U.S. researchers at Japanese universities and research institutions each year. Information on the programs will be sent to eligible applicants for their consideration. Moreover, researchers who obtained their Ph.D. within the last six years may also receive support for medium-term stays (three to six months) abroad.

Evaluation

Proposals for long-term visits to Japan will be evaluated on their merits, through the regular NSF merit review system. The following criteria are considered:

- The scientific merit of the proposed research, including (a) its potential for generating new knowledge and improved concepts, and (b) its approach and methodology;
- The competence of the U.S. and Japanese researchers in the proposed area of research;
- If appropriate, the potential applicability of the results of the proposed work in the U.S. and Japan;
- The benefits, scientific and other, to the U.S. and Japanese participants which may result from the visit; and
- The unique benefits of conducting the research in Japan.

Since Program funds are limited, consideration will also be given, in establishing priorities for proposals of substantially equal merit, to balance among disciplines or research topics and to geographic distribution.

Approximately six months after a proposal is received, applicants will be informed by letter of NSF's decision. The research visit in Japan must begin within one year of the effective date of the award, as stated in the NSF grant letter.

Proposal Format and Content

General guidelines for the preparation of the proposal, information on proposal processing, and general grant conditions are included in the publication *Grants for Research and Education in Science and Engineering*, (NSF 83-57, rev. 11/87). Unless otherwise specified, the procedures and conditions stated in that publication will apply. The specific information below is extracted from the *United States-Japan Cooperative Science Program* announcement, (NSF 81-58).

A proposal for a long-term visit consists of the following parts, assembled in sequence:

— *The NSF Cover Sheet*, (NSF Form 1207).
— *Table of Contents*.
— *Project Summary* (Include here the name and institution of the Japanese host.)
— *Results from Prior NSF Support* for awards received within the past five years.

— *Project Description.* In addition to a technical description of the problem and proposed experimental approach, this section should include details of the U.S.-Japan cooperative aspects and scientific justification for performing the work in Japan. It *may not* exceed 15 pages.
— *Copies of Correspondence* showing that the Japanese collaborator is interested in working with the applicant and will provide necessary supporting facilities.
— *Information on Previous Professional Visits to Japan.*
— *Current and Pending Support* (NSF Form 1239).
— *Vitae* and list of publications during the last five years only.
— *Summary Proposal Budget* (NSF Form 1030).
— *Budget Explanation/Justification.*

Additionally, a single copy of NSF Form 1225 (*Information about Principal Investigators/Project Directors*) must be provided.

The Budget

Specific Program allowances are currently as follows:

- A stipend to compensate for anticipated salary loss from the applicant's home institution, for the duration of the visit to Japan. The allowance requested should be based on one's basic salary, minus support to be received during the visit from one's home institution and from other sources, including any contribution from the Japanese host institution(s) (the source and dollar amount of that support must be specified). Fringe benefits are allowable on that portion of the stipend provided by NSF in lieu of salary. The stipend is limited to $2,500 per month, including fringe benefits and an allowance of $300 toward utilities. Grantees accompanied by dependents will also draw a monthly family allowance of $500. Total compensation may not exceed what the investigator's salary would have been during the same period in the U.S. The stipend is not calculated on the basis of person-months of effort, but rather on the length of residence in Japan. —Section F.1

- Housing will be handled in one of two ways. Applicants are urged to take advantage of guest researcher housing or equivalent arrangements which may be available through their Japanese host institution. Those who arrange for housing through their host institution will include those costs in their proposal budget. —F.4.

- Those who are unable to arrange accommodations through their host institution will procure housing, in consultation with the NSF Tokyo office, after their arrival in Japan. In such cases, housing expenses will not be included in the proposed budget, but will be disbursed separately from the rest of the grant, through the NSF office in Tokyo. However, the budget may include an allowance for temporary lodging for fourteen days, at half of the U.S. government local per diem rate. —F.3.

- Travel: round-trip economy fare by U.S. carrier for the visiting researcher and up to three accompanying dependents. Any other travel en route will be at the researcher's own expense. —E.

- Excess baggage allowance and allowance for shipment of supplies and equipment to and from the U.S. investigator's laboratory. —E.

- Internal travel within Japan for professional purposes. —E.

- A settling-in allowance ($1,500 for single persons and $2,500 for those with dependents), toward basic appliances and furniture adapted to Japan but not usually supplied in unfurnished apartments, such as a refrigerator, portable stoves, bedding, and utility deposits. —G.6.

- An allowance for Japanese language study. —G.6.

- School allowance for children in grades K-12, up to a maximum of $10,000 per child for two children. —G.6.

The budget must be presented on a Summary Proposal Budget page (NSF Form 1030), with all items explained or justified on a separate sheet. Items should be listed on Form 1030 under the sections noted above at the end of each separate category. (For example, the allowances for settling-in, language study, and schooling are to be included under section G.6—other direct costs). Because of limited Program funds, investigators are encouraged to draw up as tight a proposed budget as possible. There is currently an upper limit of $50,000 per 12-month period for any project, excluding housing. In lieu of indirect costs, an allowance of $250 will be provided the researcher's home institution to defray administrative expenses.

☞ To offset high initial costs, NSF strongly encourages the U.S. home institution to advance each awardee before departure from the United States the settling-in allowance, two months' stipend, and six months' housing allowance, if housing is included in the proposal budget.

Application Deadlines

Proposals for long-term visits may be submitted at any time. Applicants should allow six months for NSF to reach a decision and obtain Japanese government concurrence. Applicants should submit ten copies of the proposal to:

Proposal Processing Unit, Room 223
U.S.-Japan Cooperative Science Program
National Science Foundation
Washington, D.C. 20550

Final Reports

The visiting researcher is required to submit a final technical report and a summary description of his or her work in Japan on NSF Form 98A. In addition, the Program requests that each researcher also submit on NSF Form 1244 answers to some additional questions on his or her host institution in Japan.

Inquiries

For inquiries concerning the long-term visit program, contact:

Long-term Visits to Japan
Division of International Programs, Room 1208
National Science Foundation
Washington, D.C. 20550

Telephone: (202) 357-9558
Electronic mail: cwallace@note.nsf.gov

Who May Apply

The Foundation welcomes applications for long-term visits to Japan from all qualified scientists and engineers, and strongly encourages women, minorities, and persons with disabilities to compete fully for them. NSF provides funding for special assistance or equipment to enable persons with disabilities to accept NSF research awards. Ask for publication 84-62. NSF has TDD (Telephonic Device for the Deaf) capability to enable individuals with hearing impairments to communicate with the Division of Personnel and Management for information about NSF programs. The telephone number is (202) 357-7492.

In accordance with Federal statutes and regulations and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity receiving financial assistance from the National Science Foundation.

The Foundation provides awards for research in the sciences and engineering. The awardee is wholly responsible for the conduct of such research and preparation of the results for publication. The Foundation, therefore, does not assume responsibility for such findings or their interpretation.

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National Science Foundation
Washington, D.C. 20550

Program Announcement

NSF-AIST Program

The National Science Foundation (NSF) and the Agency of Industrial Science and Technology (AIST), of the Ministry of International Trade and Industry (MITI) of Japan, announce a program to support U.S. scientists and engineers, whether from academia, government, or industry, to conduct research at AIST institutes. Beginning in 1988, AIST each year will receive up to thirty U.S. visitors selected by NSF. The purpose of this program is to advance scientific and technological knowledge and to increase cooperation in research and development between NSF and AIST.

This program will be supported by both NSF and AIST. NSF will provide a stipend, costs for travel to and from the AIST host institute, and reasonable living expenses in Japan for applicant and family. Each AIST host institute will provide required research facilities and equipment and in general treat the U.S. visitor as a regular researcher at the AIST institute. Visits will normally last from six months to one year. Facility in spoken Japanese is desirable but not mandatory. (For information about possible NSF support for learning Japanese, see the separate program announcement, NSF 88-10.)

Who May Apply

U.S. scientists and engineers working in any of the areas of research engaged in at the AIST host institutes (see below for details) may submit proposals for support under this program. This program may be combined with NSF's programs for domestic postdoctoral research. Applicants for such post-doctoral fellowships, with the concurrence of the granting program, may include a stay at an AIST laboratory as part of their fellowship plan. NSF's Division of International Programs will pay any additional costs incurred by the research stay in Japan.

When To Apply

Proposals for support under this program will be accepted at any time. Applicants should allow at least six months' lead time between the submission of their proposal and their desired starting date.

How To Apply

Because visits to AIST research institutes under this program are likely to be rather individualized, applicants are encouraged to contact program staff before submitting proposals. Applicants will note from Articles 2 and 3 of the appended NSF-AIST Memorandum of Understanding that AIST must approve each researcher whom NSF nominates. Thus each applicant should begin correspondence with his or her prospective Japanese host well before submitting a proposal. If applicants encounter difficulty in making initial contacts, NSF can provide assistance.

General guidelines for the preparation of the proposal, information on proposal processing, and general grant conditions are included in the publication *Grants for Research and Education in Science and Engineering* (NSF 83-57, rev. 11/87). Unless otherwise specified in this Announcement, the procedures and conditions given in that publication apply. In lieu of indirect costs, an allowance of $250 will be provided the researcher's home institution to defray administrative expenses.

Each proposal should include a description of the proposer's research interest, plans for the research at the AIST host institute, budget, and *vita*. Ten copies of the proposal should be sent to:

Proposal Processing Unit, Room 223
NSF-AIST Program, INT/Japan
National Science Foundation
Washington, D.C. 20550

Location of AIST Facilities

AIST consists of the following facilities, located at Tsukuba (Japan's Science City), unless otherwise noted:

AIST Laboratories: Researchers and Budget

Name	Researchers	Budget*	
		yen	dollars
Electrotechnical Laboratory	560	9,220	73.8
National Chemical Laboratory for Industry	284	3,636	29.1
National Research Institute for Pollution and Resources	247	3,781	30.2
Geological Survey of Japan	246	4,362	34.9
Mechanical Engineering Laboratory	219	3,149	25.2
Government Industrial Research Institute, Nagoya	193	2,509	20.1
Government Industrial Research Institute, Osaka	174	2,524	20.2
National Research Laboratory of Metrology	128	2,138	17.1
Research Institute for Polymers and Textiles	104	1,434	11.5

Industrial Products Research Institute	104	1,421	11.4
Government Industrial Development Laboratory, Hokkaido	73	1,179	9.43
Fermentation Research Institute	70	1,187	9.50
Government Industrial Research Institute, Kyushu	70	879	7.03
Government Industrial Research Institute, Chugoku	40	695	5.56
Government Industrial Research Institute, Tohoku	39	566	4.53
Government Industrial Research Institute, Shikoku	34	465	3.72
Totals	2,585	39,148	313.2

* Budget figures are for Japan fiscal year 1987, in millions of *yen* (middle column) and millions of dollars (right-hand column, at ¥125/US$1.00).

Inquiries

Questions concerning this program or proposal submission should be directed to the NSF program officer in the relevant disciplinary field or to:

NSF-AIST Program, Room 1208
Division of International Programs
National Science Foundation
Washington, D.C. 20550

Telephone: (202) 357-9558
Electronic mail: cwallace@note.nsf.gov

General Information

The National Science Foundation provides awards for research in the sciences and engineering. The awardee is wholly responsible for the conduct of such research and preparation of the results for publication. The Foundation, therefore, does not assume responsibility for such findings or their interpretation.

The Foundation welcomes proposals on behalf of all qualified scientists and engineers, and strongly encourages women, minorities, and persons with disabilities to compete fully in the research programs described in this brochure. NSF provides funding for special assistance or equipment to enable persons with disabilities to accept NSF research awards. Ask for publication 84-62. The Foundation has TDD (Telephonic Device for the Deaf) capability to enable individuals with hearing impairments to communicate with the Division of Personnel and Management for information about NSF programs. The telephone number is (202) 357-7492.

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FOR RELEASE:

IMMEDIATE
NSF PR 88-39

Jeffrey Norris
Office: (202) 357-9498
Home: (202) 265-5202

NSF TO PLAY MAJOR ROLE IN U.S.-JAPAN SCIENTIFIC RESEARCH COOPERATION

Consistent with an agreement signed in Toronto on June 20 by President Reagan and Japanese Prime Minister Noboru Takeshita, the National Science Foundation (NSF) is expanding efforts to place more U.S. scientists in Japanese government, university and industry laboratories.

NSF has operated an office in Tokyo and has been assisting U.S. scientists in Japan since 1962, when the first scientific exchange agreement between the two countries took effect.

Now, with the addition of four new U.S.-Japan activities, each coordinated with a different Japanese government entity, and through its own 1988 Japan Initiative, NSF will place more U.S. scientists in academic laboratories, will help to greatly increase the number conducting research in government laboratories--including a number of world-class facilities boasting ample state-of-the-art equipment--and will also secure opportunities for U.S. scientists to work in Japanese industrial laboratories.

-more-

Research visits will typically last from six months to one year. The first scientist to benefit from these new cooperative activities arrived in Japan last month.

During the signing ceremony in Toronto, President Reagan hailed the potential for cooperative programs to support the new research accord:

"Recognizing the great contributions both of our scientific establishments have to offer to world prosperity, we seek to enhance cooperation in a number of research areas of national importance. ... I might add that this new agreement is already bearing fruit."

To help implement a policy calling for "internationalization" of Japanese science, Japan, through its Ministry of Foreign Affairs, has provided $4.8 million to NSF, which will be used to send from 75 to 100 U.S. researchers to Japan primarily through the new and previously existing agreements NSF has established with Japanese technical agencies. The funds will be used to sponsor research stays not only in university and government laboratories, but also in industry laboratories as well.

Additionally, through a cooperative program sponsored by the Japanese Science and Technology Agency (STA), approximately 50 U.S. scientists, 35 and younger, will conduct research in non-university Japanese national laboratories, including many associated with other ministries. NSF will select 20 scientists under this program, the National Institutes of Health will choose five, other U.S. federal agencies are allotted 10 for their own staff researchers, and scientists and engineers from Japanese government laboratories will pick the remaining 15. The Foundation will coordinate these visits with STA.

Through another new program, the Japan Society for the Promotion of Science will send 50 young scientists to Japan each year for one-year stays in laboratories funded by the Ministry of Education, Science and Culture, among them the world-class National Laboratory for High Energy Physics and the Okazaki National Research Institutes. Twenty-five of the candidates under this program will be nominated by NSF, five will be nominated by the National Institutes of Health, and 20 additional scientists will be directly invited by Japanese professors.

Under a third new program, a joint effort by NSF and Japan's Ministry of International Trade and Industry, up to 30 NSF-selected scientists will go to Japan for research stays in

institutes of MITI's Agency of Industrial Science and Technology (AIST). Among the highly regarded laboratories in which positions will be available through this program are the Electrotechnical Laboratory and the Fermentation Research Institute.

Both NSF and AIST will support the program. NSF will pay living and travel expenses, as well as a stipend, and AIST will provide facilities and equipment. In general, AIST will offer U.S. researchers the same opportunities available to Japanese scientists in AIST laboratories.

Although the U.S. scientific establishment is larger than that of Japan, there are many more Japanese scientists who come to the United States to work and study than there are U.S. scientists who travel to Japan to do research. One disincentive for U.S. scientists is that few speak Japanese or are acquainted with the Japanese culture or research establishment.

The persistent difficulties of communicating a growing body of increasingly important Japanese scientific findings to U.S. scientists has led NSF to intensify its cooperative efforts this year through the establishment of a Japan Initiative.

The fiscal year 1988 NSF budget for the Japan Initiative is $800,000, which will support about 50 Japanese language-study fellowships, the development of curricula and course materials for teaching technical Japanese, and additional research visits to Japan. The Japan Initiative will also support U.S. survey teams, which will report on progress in Japanese research laboratories and identify additional opportunities for U.S. scientists to perform research there.

For more information, contact U.S.-Japan Cooperative Science Programs, (202) 357-9558, at NSF's Division of International Programs.

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